



GAIL FARBER, Director

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
<http://dpw.lacounty.gov>

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

IN REPLY PLEASE
REFER TO FILE:

A-0

September 4, 2012

TO: Each Supervisor

FROM: Gail Farber *Gail Farber*
Director of Public Works

BOARD MOTION OF JANUARY 24, 2012, AGENDA ITEM NO. 8 RURAL OUTDOOR LIGHTING DISTRICT ORDINANCE PUBLIC WORKS COMPLIANCE REPORT

At the Board of Supervisors meeting of January 24, 2012, your Board approved a motion directing the Director of Public Works to provide a report detailing how Public Works' facilities affected by the Ordinance will comply and requested that the report be prepared within six months with the goal of finding the most cost-effective methods. Your Board also instructed County Counsel, in cooperation with the Directors of Regional Planning and Public Works, to bring a revised Ordinance back to the Board for final approval incorporating certain specified amendments.

On May 29, 2012, your Board authorized Public Works to expend Road Funds and Flood Control District Funds to conduct a Rural Outdoor Lighting District Ordinance Compliance Study for ten road maintenance yards and six flood control dams at a cost not to exceed \$160,000 for consultant services and in-house support, including up to \$120,000 for a Public Works' consultant, J.C. Chang and Associates Inc. (Consultant), to perform an analysis and develop compliance recommendations.

On August 8, 2012, I requested an additional 30 days so that the submittal of the report can coincide with your Board's adoption of the final ordinance; giving the Board the benefit of the adopted Ordinance to review the report.

In addition to the 10 road maintenance yards and 6 flood control dams, there are 2 additional sewer maintenance facilities, 62 waterworks sites, and 1 commuter rail facility, which are located within the Rural Outdoor Lighting District boundary.

The cost to modify the 81 Public Works facilities within the Rural Outdoor Lighting District boundary is estimated at approximately \$1,780,400. The costs by facility type are summarized as follows:

#	Facility Type	Cost Estimate
10 ^	Road Maintenance Yards	\$957,600
1 ^	Transit Station (MTA – Acton/Vincent Station)	\$77,100
6 ^	Flood Maintenance Dams	\$623,000
2 ^	Sewer Maintenance Facilities	\$86,400
62 *	Waterworks Facilities	\$36,300
Total		\$1,780,400

* The study was conducted by Waterworks Division Electro-Mechanical staff.

^ The study was conducted by J.C. Chang & Associates, Inc.

These facilities were analyzed for compliance and appropriate recommendations were developed utilizing respective special district funding sources. The waterworks facilities study was conducted by in-house electro-mechanical staff and all other facility studies were prepared by the Consultant. The scope of the facility studies were as follows:

1. Review the requirements of the Ordinance.
2. Analyze the affected sites to confirm existing lighting installations.
3. Measure existing lighting intensities at critical locations.
4. Determine cost-effective lighting changes to reduce lighting impacts.
5. Bring each facility into compliance with the Ordinance.
6. Develop rough order of magnitude cost estimates to implement the changes.

Each site was visited in the evening by the Consultant and/or in-house staff to be able to evaluate the sites in an illuminated condition and to take light intensity measurements at appropriate locations. Site-specific recommendations were developed for each facility and are included in the appropriate facility report. The facility reports are attached for reference as follows:

- Attachment A – Road Maintenance Yards
- Attachment B – Transit Station (MTA – Acton/Vincent Station)
- Attachment C – Flood Maintenance Dams
- Attachment D – Sewer Maintenance Facilities
- Attachment E – Waterworks Facilities

Each Supervisor
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In order to develop the most cost-effective method of complying with the Ordinance, we plan on submitting site plans for certain facilities to the Director of Regional Planning, as authorized under Section 22.44.540(e), in order to permit light mounting heights higher than specified in the Ordinance. We will report back to your Board every six months to provide an update on our progress of retrofitting our facilities to comply with the Rural Outdoor Lighting District Ordinance.

If you have any questions regarding this matter, please contact Dennis Hunter at (626) 458-4006 or dhunter@dpw.lacounty.gov.

DH:ja

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Attach.

cc: Chief Executive Office (Rita Robinson)
County Counsel
Executive Office
Department of Regional Planning

13 July 2012

RURAL OUTDOOR LIGHTING ORDINANCE COUNTY ROAD MAINTENANCE YARDS COST IMPACT ANALYSIS

REPORT

Prepared for:

**LOS ANGELES COUNTY
DEPARTMENT OF PUBLIC WORKS**
Architectural Engineering Division
900 South Fremont Avenue
Alhambra, California 91803
Telephone: (626) 458-2566
Facsimile: (626) 979-5311



Prepared by:

J.C. CHANG & ASSOCIATES, INC.
Engineers • Architect • Planners
385 Van Ness Avenue, Suite 208
Torrance, California 90501
Telephone: (310) 212-7644
Facsimile: (310) 212-5272
www.jccainc.com

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SECTION 1.0
EXECUTIVE SUMMARY

The County of Los Angeles is considering adopting a new Rural Outdoor Lighting Ordinance initiated by the Department of Regional Planning. This report evaluates the cost impact on the Department of Public Works (DPW) to upgrade their Road Maintenance Yards to comply with the proposed ordinance.

There are a total of 33 Road Maintenance Yards countywide. However only 10 of them are in rural areas and therefore impacted by the new ordinance. The scope of this report is limited to the County Road Maintenance Yards. Other County rural sites impacted by the ordinance are addressed in separate reports. The list of yards included in this report is shown in paragraph 2.2.

Many of the existing light fixtures at the Rural Road Maintenance Yards are not the full cutoff type required by the Ordinance, and will therefore have to be replaced. Also, current lighting fixture control systems do not comply with the ordinance. Another issue with the majority of the current fixtures is that many of them exceed the mounting height above ground required by the Ordinance which in some cases results in light trespass on the neighboring property. The Ordinance defines light trespass as light falling across a property line onto an adjoining lot or onto an adjoining public right-of-way.

Estimated Rough Order of Magnitude (ROM) Costs:

A.	RD 339 Agoura	\$ 106,286
B.	RD 551 Quartz Hill	\$ 345,642
C.	RD 558 Littlerock	\$ 88,405
D.	RD 558A Jackson Lake	\$ 84,240

E.	RD 556A Gorman	\$ 47,775
F.	RD 559 San Francisquito Canyon Road	\$ 36,660
G.	RD 559A Mount Wilson	\$ 92,040
H.	RD 557A Mill Creek	\$ 71,175
I.	RD 555 Lake LA	\$ 54,900
J.	RD 555A Lancaster	\$ 30,500
Total		\$ 957,623

SECTION 2.0

SCOPE OF THE ANALYSIS

- 2.1 The County of Los Angeles is considering adopting a new Ordinance amending Title 22 of the County Code. The Ordinance will establish a Rural Outdoor Lighting District that will establish guidelines governing outdoor lighting. The main objectives include curtailing light pollution, preventing light trespass onto adjoining properties, promoting dark skies, conserving energy, etc., while permitting reasonable uses of outdoor lighting for night time safety, security, productivity, and enjoyment.
- 2.2 DPW has a total of thirty three (33) Road Maintenance Yards in four Road Maintenance Districts. See Appendix I. Only ten (10) of these sites are in rural areas, the remaining twenty three (23) are in urban areas. The following is a list of the rural yard sites:

<u>Yard No.</u>	<u>Address</u>	<u>Zoning</u>	<u>Date Inspected</u>
RD 339	29773 W Mulholland Hwy., Agoura 91301	A1	01/17/2012
RD 551	4859 W Avenue L-12, Quartz Hill 93534	R3	01/18/2012
RD 558	8505 E Avenue T, Littlerock 93543	A1	06/05/2012
RD 558A	22201 Big Pines Hwy, Wrightwood 92397	W	06/05/2012
RD 556A	49530 Gorman Post Rd., Gorman 93243	W	06/11/2012
RD 559	35100 San Francisco, Saugus 91350	W	06/11/2012
RD 559A	817 Mt Wilson Road, Mount Wilson 91023	W	06/13/2012
RD 557A	27500 Angeles Forest Hwy., Palmdale 93550	W	06/13/2012
RD 555	17341 E Avenue J, Lancaster 98536	A1	06/19/2012
RD 555A	45112 N 70 th St. East, Lancaster 93535	A2	06/19/2012

- 2.3 The scope of this report is to:

- A. Review the requirements of the Ordinance and analyze the ten yards to confirm existing installation and changes required to comply with the Ordinance.

- B. Provide a rough order of magnitude (ROM) cost estimate to implement the required changes.

2.4 The main provisions of the new Ordinance as it affects the Road Maintenance Yards can be summarized as follows:

- A. Outdoor lighting fixtures must be fully shielded type (22.44.540 C). That is a light fixture that emits no light in the area above a horizontal plane passing through the lowest point of the fixture and not more than 10 percent of its light in the area between zero and 10 degrees below such horizontal plane. A full cutoff fixture is a fully shielded fixture of a specific design, usually a box or oval shape with a flat bottom.
- B. Light trespass measured at the property line must not exceed 0.5 foot-candles where the adjoining property is zoned residential, open space, agricultural or public right-of-way.

For other adjoining zoning the limit is 1.0 foot-candles.

- C. The fixture height from ground level to the top of the fixture (22.44.450 D) is limited to:

- 1. Residential, agricultural, open space and watershed:

20 Feet – except if over 15 feet the fixture lumens are limited to 400. This effectively limits the height to **15 feet**, since 400 lumens is an extremely low lighting level (equivalent to a 40-watt incandescent lamp).

- 2. For parcels zoned other than above:

30 Feet

- D. Outdoor lighting must be turned off between the hours of 10 p.m. and sunrise. There must be an automatic time switch control to turn the lights off. The timer must be capable of separate schedules for weekdays and weekends. (22.44.550)

Exceptions:

1. Where there are night time operations the lights must be turned off within one hour of close of business.
 2. Commercial and industrial uses may reduce the lighting level to 50 percent between 10 p.m. and sunrise instead of turning off all lights. (22.44.550 B.3.b.)
 3. Security and operations lighting for public facilities. (22.44.550 C.4.c.).
- 2.5 The County Road Maintenance Yards are used to store and maintain equipment, supplies and fuel. The function of the maintenance crew includes response to emergency events that affect public safety and is dependent on their ability to safely and quickly access the equipment, materials and supplies at Maintenance Yards. Several of the sites have been subject to repeated break-ins which resulted in theft and significant damaged, therefore some measure of on site security is required to ensure the safety of the maintenance crew and resources critical to public safety and effectiveness of operations, especially during inclement situations when urgent response is needed. Therefore a variance is required to allow select lighting fixtures to remain on during off hours as a measure of site security and also allow select lighting fixtures critical to operations to be controlled by motion sensors during off hours.
- 2.6 The sites were visited by JCCA engineers, JCCA's lighting consultant Jun Apolinario, DPW Senior Electrical Engineer (John Fallon) and were assisted by site staff. The date of the inspection is noted in paragraph 2.2.. Existing conditions were recorded and are shown on the drawings included. Light level readings were taken after dark and the existing fixture types were noted. The cost estimates herein were prepared based on the input from the lighting consultant and from lighting contractors.

SECTION 3.0
RD 339 AGOURA

3.1 Site Description

- A. The site Address is:

29773 Mulholland Highway
Agoura, CA 91301

The site area is approximately 0.9 acres and is zoned Agricultural – A1. See Section 3.6 for the site plan.

- B. Currently most exterior lights are left on all night for security. None of the existing fixtures are the cutoff type.

3.2 Non-compliance with Proposed Ordinance

The current non-compliance conditions to the new Ordinance at the site are:

- A. None of the existing fixtures are the full cutoff type.
- B. The lights under the two canopies and on the South Side of the garage are mounted higher than 15'.
- C. Portions of the North property line have lighting levels above 0.5 foot candles.
- D. The light at the yard sign on the South property line has an upshot light.
- E. The lighting level at the South property line at the light fixture at the entry gate exceeds 0.5 foot candles.

- F. Lights are left on between 10:00 p.m. and sunrise.

3.3 Recommended Modifications

- A. Remove all existing fixtures and replace with full cutoff type fixtures. Mounting height shall not exceed 15'. This will require pendant fixtures under the canopies or relocation to the columns at a lower level.
- B. At South property line, replace pole mounted light by entrance gate with a full cutoff fixture and the uplight illuminating the entry sign with a full cutoff fixture mounted on top of the sign.
- C. Currently there are four fixtures on the emulsion tank canopy. The northerly two closest to adjacent property should be removed since they are not needed and are currently contributing to the light trespass along the north property line.
- D. Provide two automatic time switches, one in the garage and one in the office for security and critical night time operations.
- E. The automatic time switch will shut off all lights at 10:00 p.m.
- F. The automatic time switches will have an override capability to allow the lights to be turned on for off hours (emergency) operations by motion sensors where applicable and will automatically turn off again after one hour.
- G. Some select light fixtures are to be left on during night hours for security and operational needs and will accordingly require a variance as described in section 2.5. See site plan for locations.

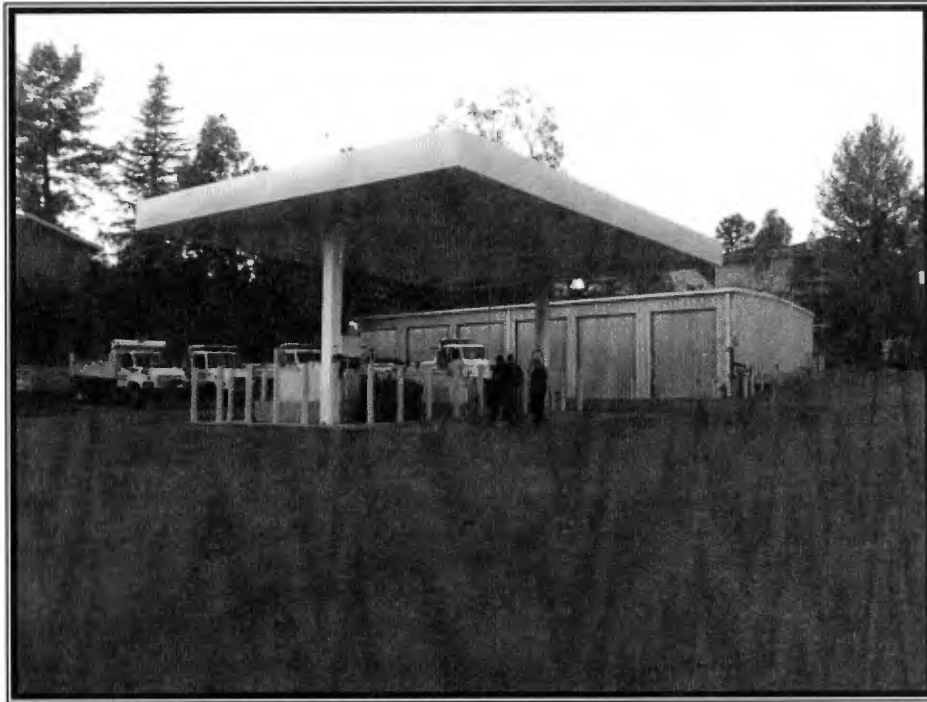
3.4 Estimated ROM Cost

Remove six lights on

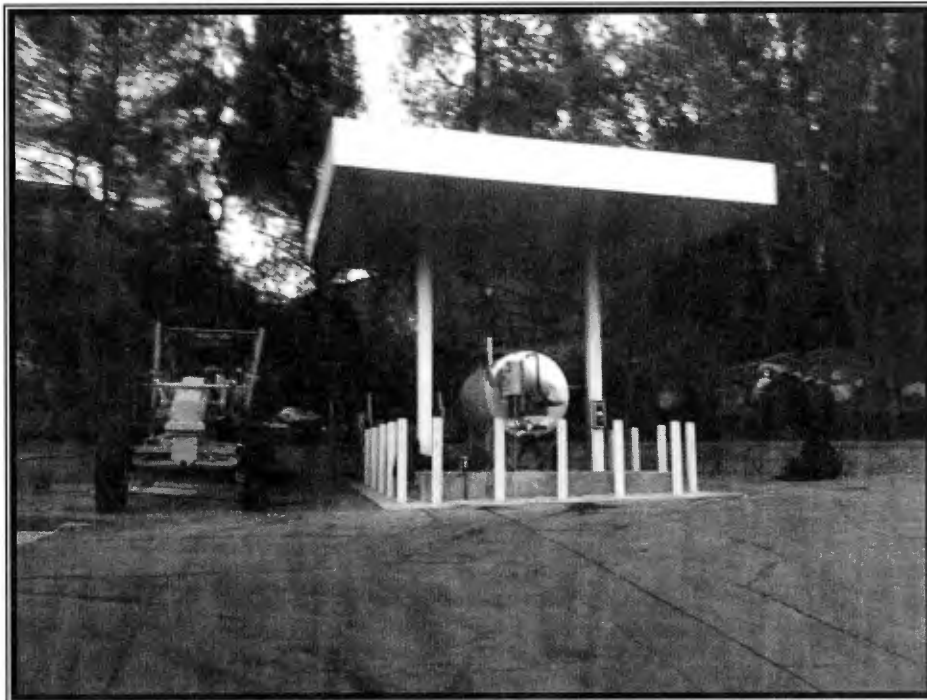
Garage and replace with four	4 @ \$2,500 = \$10,000
Remove and replace two lights on Emulsion Tank Canopy	2 @ \$2,200 = \$ 4,400
Remove and replace two lights on Fuel Island Canopy	2 @ \$2,200 = \$ 4,400
Remove five lights on Office & replace with two	2 @ \$1,200 = \$ 2,400
Remove light at gate and sign replace with pole mounted light by gate and	2 @\$7,000 = \$14,000
Full cutoff light mounted on top of sign Automatic Timer Switch	2 @\$1,500 = \$ 3,000
Miscellaneous	<u>\$ 11,400</u>
Subtotal	\$49,600
Design Contingency (25%)	<u>\$12,400</u>
Subtotal	\$62,000
Contractor Overhead and Profit (20%)	<u>\$12,400</u>
Subtotal	\$74,400
Soft Costs Project Management, Design, Permits, Inspection (30% of total)	<u>\$31,886</u>
Total	\$106,286

3.5 Photographs

The following photographs were taken during the dates of site visit stated in Section 2.2.



PH-1 Fueling Canopy and Garage (RD 339)



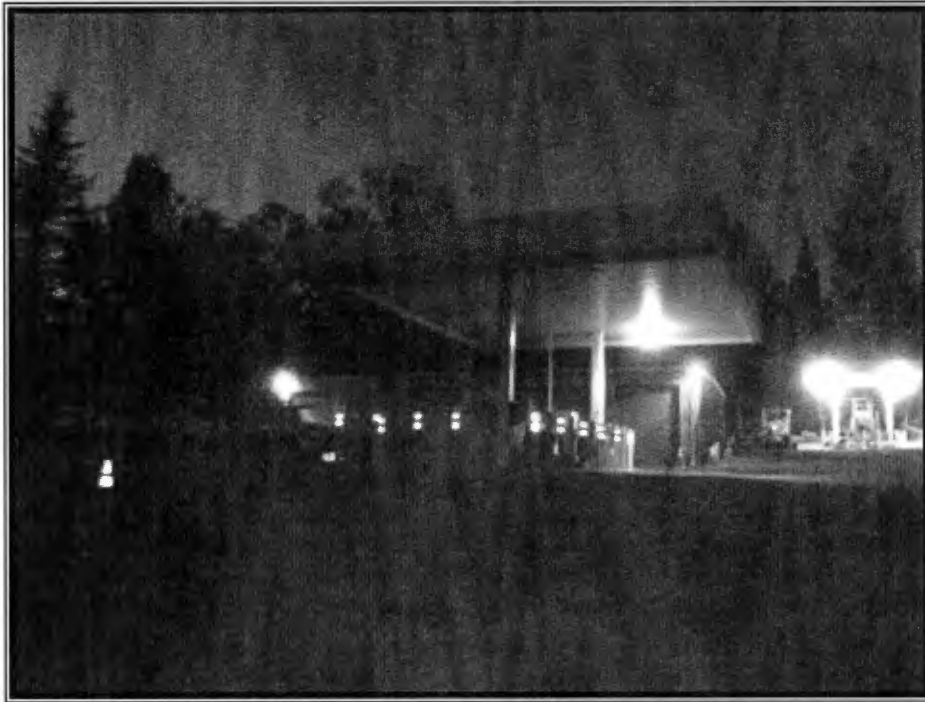
PH-2 Emulsion Tank Canopy (RD 339)



PH-3 Typical Flood Light Fixture



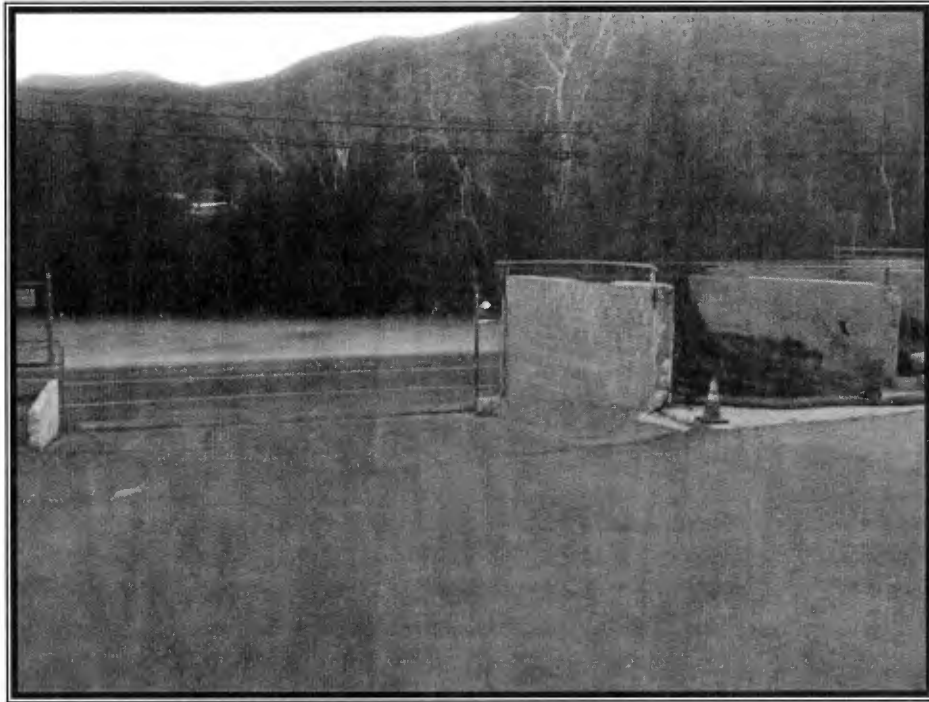
PH-4 Spotlights on North Side of Garage



PH-5 Canopy and South Side Garage Lights



PH-6 Sign Flood Light



PH-7 Fence Mounted Light at Entrance

3.6 Site Plan

The following Site Plan is based on the best available information as well as observations during site visit

SECTION 4.0
RD 551 QUARTZ HILL

4.1 Site Description

- A. The site address is:

4859 West Avenue L-12
Quartz Hill, CA 93534

The site area is approximately 2.25 acres and is zoned Residential – R3. See Section 4.6 for site plan.

- B. Currently all exterior lights are left on all night for security.
- C. The flood lights are directed out onto the yard area. This provides security lighting for the site.
- D. One flood light mounted on the eave of the office building is directed upwards to provide lighting for the flag.

4.2 Non-compliance with Proposed Ordinance

The current non-compliance conditions to the new Ordinance at the site are:

- A. None of the existing fixtures are the full cutoff type.
- B. The lights on the canopy and on the garage are mounted higher than 15’.
- C. Portions of the South property line at the entry gate have lighting levels above 0.5 foot candles.

D. The light at the flag on the South property line has an upshot light.

E. Lights are left on between 10:00 p.m. and sunrise.

4.3 Recommended modifications

A. Replace all light fixtures with cutoff fixtures. Mounting height cannot exceed 15'. This will require pendant fixtures under the canopy or relocation to columns under 15 feet.

B. The up light for the flag cannot be replaced. The flag will have to be taken down at night.

C. The two pendant lights at the wash rack must be replaced with full cutoff fixtures.

D. One of the four canopy lights at the fueling island will remain on all night for security.

E. The five lights on the garage will be replaced with four new full cutoff lights.

F. Due to the nature of the required cutoff light fixture the area lighted will be very much reduced compared to the existing flood lights. Therefore perimeter lighting must be added for operations and security in the yard. Location of perimeter lighting is shown on site plan.

G. Provide two automatic time switches, one in the garage and one in the office for security and critical night time operations.

H. The automatic time switch will shut off all lights at 10:00 p.m.

- I. The automatic time switches will have an override capability to allow the lights to be turned on for off hours (emergency) operations by motion sensors where applicable and will automatically turn off again after one hour.
- J. Some select light fixtures are to be left on during night hours for security and operational needs and will accordingly require a variance as described in section 2.5. See site plan for locations.

4.4 Estimated ROM Cost

Remove and replace four fueling Island Canopy Lights	4 @ \$2,200 = \$ 8,800
Remove five lights on Garage and replace with four as shown on site plan	4 @ \$2,500 = \$ 10,000
Remove nine Lights at office and replace with two as shown on site plan	2 @ \$1,250 = \$ 2,500
Automatic Timer Switches	2 @ \$2,500 = \$ 5,000
Miscellaneous	<u>\$ 5,000</u>
Subtotal	\$ 31,300
Design Contingency (25%)	<u>\$ 7,825</u>
Subtotal	\$ 39,125
Contractor Overhead and Profit (20%)	<u>\$ 7,825</u>
Subtotal	\$ 46,950

Soft Costs:	
Project Management, Design, Permits, Inspection (30% of total)	<u>\$ 20,121</u>
Ordinance Compliance Subtotal	\$ 67,071
Light Pole, Footing, Arm, Fixture, etc. 12 @ \$7,000 = \$ 84,000	
Trenching, Conduit, Wiring, Backfill, Pavement Repair, etc. 1,200 L.F. @ \$30/Ft = \$ 36,000	
Miscellaneous	<u>\$ 10,000</u>
Subtotal	\$130,000
Design Contingency (25%)	<u>\$ 32,500</u>
Subtotal	\$162,500
Contractor Overhead and Profit (20%)	<u>\$ 32,500</u>
Subtotal	\$195,000
Soft Costs	
Project Management, Design, Permits, Inspection (30% of total)	<u>\$ 83,571</u>
Perimeter Security Subtotal	\$278,571
Total	\$345,642

4.5 Photographs

The following photographs were taken during the dates of site visit stated in Section 2.2.



PH-1 6' CMU Perimeter Wall and Yard Sign



PH-2 Flood Light on Flag



PH-3 Fuel Island Canopy Lights and Spotlight on Office Eave



PH-4 Typical Flood Light on Garage

4.6 Site Plan

The following Site Plan is based on the best available information as well as observations during site visit.

SECTION 5.0
RD 558 LITTLE ROCK

5.1 Site Description

- A. The site Address is:

8505 East Avenue T
Littlerock, CA 93543

The site area is approximately 1.42 acres and is zoned Agricultural – A1. See Section 5.6 for the site plan.

- B. Currently most exterior lights are left on all night for security. None of the existing fixtures are the cutoff type.

5.2 Non-compliance with Proposed Ordinance

The current non-compliance conditions to the new Ordinance at the site are:

- A. None of the existing fixtures are the full cutoff type.
- B. The lights under the gas station canopies and on the South Side of the garage are mounted higher than 15'.
- C. Majority of flood lights mounted on to Garage A, Garage B & Office buildings as well as to the posts of the Wash Rack canopy are mounted higher than 15'.
- D. Portions of both the North and South property lines have lighting levels above 0.5 foot candles.
- E. Lights are left on between 10:00 p.m. and sunrise.

5.3 Recommended Modifications

- A. Remove all existing fixtures for Garage A, Garage B and Office buildings and replace with full cutoff type fixtures. Mounting height shall not exceed 15'.
- B. The surface mounted lights under the canopy will be replaced by wall-mounted full cutoff type fixtures mounted to the poles supporting the canopy. In lieu of the existing pole-mounted fixture by the emulsion tank, wall-mounted full cutoff type fixtures will be provided.
- C. Remove all existing fixtures for Wash Rack canopy and replace with one pendant mounted full cutoff fixture. Mounting height shall not exceed 15'.
- D. Provide two new pole lights near the South fence to illuminate the parking area.
- E. Provide two automatic time switches, one in the garage and one in the office.
- F. The automatic time switch will shut off all lights at 10:00 p.m.
- G. The automatic time switches will have an override capability to allow the lights to be turned on for off hours (emergency) operations by motion sensors where applicable and will automatically turn off again after one hour.
- H. Some select light fixtures are to be left on during night hours for security and operational needs and will accordingly require a variance as described in section 2.5. See site plan for locations.

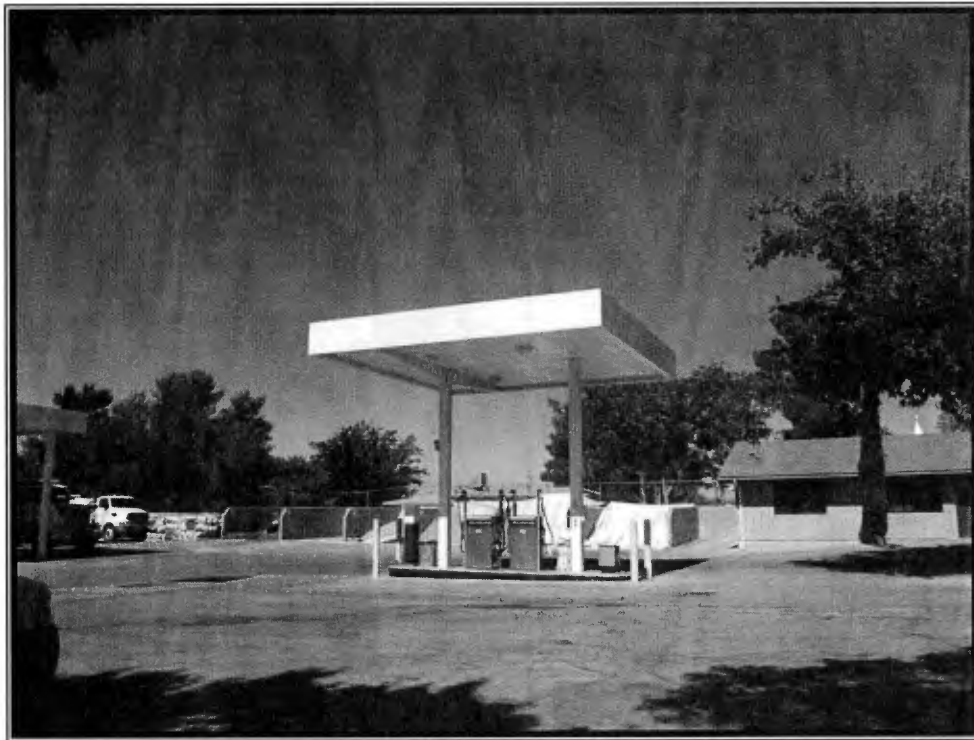
5.4 Estimated ROM Cost

Remove nine lights from Garage A
garage B, Office and replace with eight 8 @ \$2,500 = \$20,000

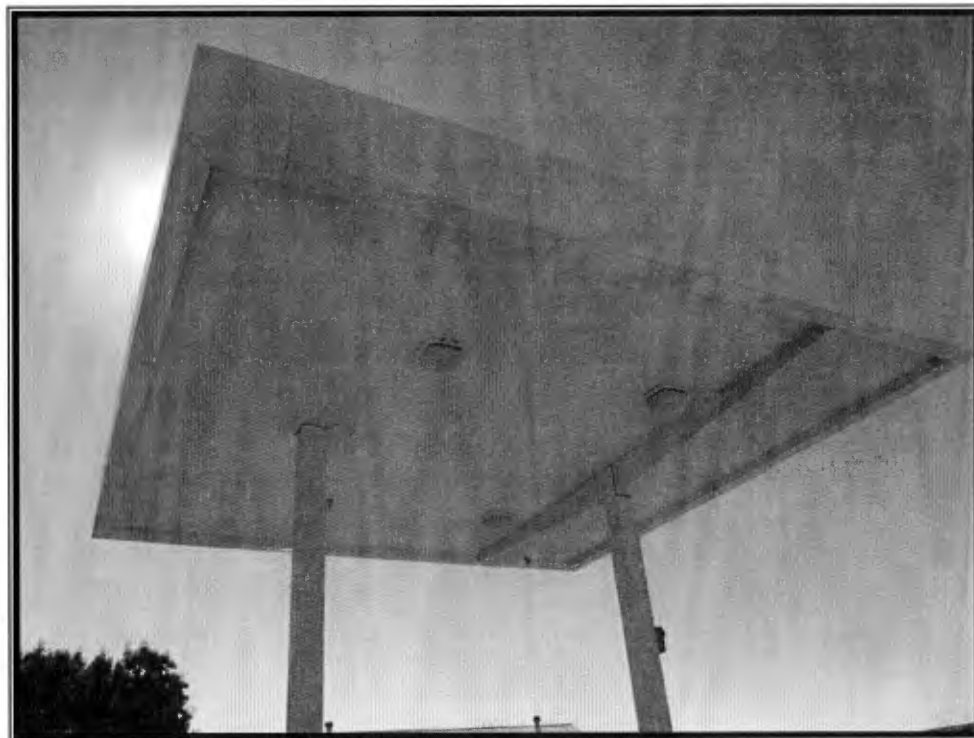
Replace Canopy lights for gas station with wall-mounted full cutoff	2 @ \$1,200 = \$2,400
Remove pole-mounted light at emulsion tank and replace with wall-mounted full cutoff fixtures	2 @ \$1,500 = \$3,000
Provide new pole-mounted full cutoff fixtures for parking area	2 @ \$3,500 = \$ 7,000
Automatic Timer Switches	2 @ \$1,500 = \$ 3,000
Miscellaneous	<u>\$ 12,500</u>
Subtotal	\$47,900
Design Contingency (25%)	<u>\$11,975</u>
Subtotal	\$59,875
Contractor Overhead and Profit (20%)	<u>\$11,475</u>
Subtotal	\$71,350
Soft Costs	
Project Management, Design, Permits, Inspection (30% of total)	<u>\$17,055</u>
Total	\$88,405

5.5 Photographs

The following photographs were taken during the dates of site visit stated in Section 2.2.



PH-1 Overall Site View



PH-2 Under Canopy Lighting



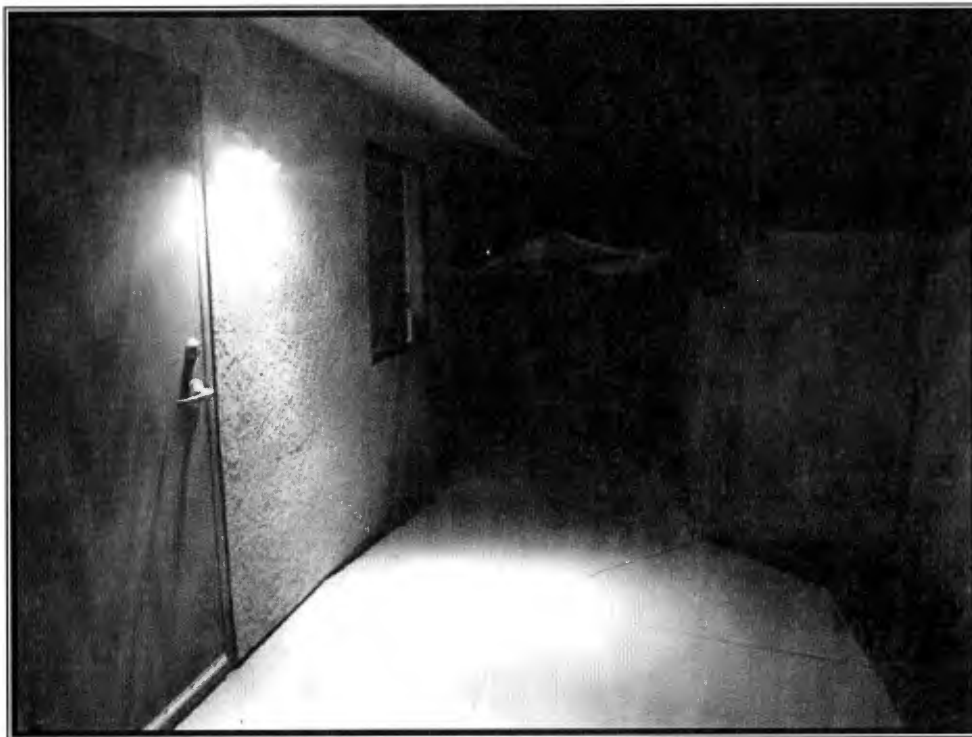
PH-3 Building Mounted Lights To Be Replaced



PH-4 Light Trespass At North Boundary Fence



PH-5 Pump Station Lighting At Night



PH-6 Doorway Lighting At Night

5.6 Site Plan

The following Site Plan is based on the best available information as well as observations during site visit.

SECTION 6.0
RD 558A JACKSON LAKE

6.1 Site Description

- A. The site Address is:

22201 Big Pines Highway
Wrightwood, CA 92397

The site area is approximately 0.9 acres and is zoned Agricultural – A1. See Section 6.6 for the site plan.

- B. Currently most exterior lights are left on all night for security. None of the existing fixtures are the cutoff type.
- C. Several fixtures were not operational due to burned out lamps or ballasts during site visit, therefore the study of light trespass is based in part on assumed lighting levels if all fixtures were operational.
- D. The Jackson Lake site has had three break-ins in a 14 month period, including theft of 850 gallons of fuel, thousands of dollars of tools and a 924 cubic yard hazardous spill response on adjacent federal lands in the Angeles National forest as a result of associated fuel theft. These incidents including cleanup response to the hazardous spill resulted in a total cost of \$650,000.

6.2 Non-compliance with Proposed Ordinance

The current non-compliance conditions to the new Ordinance at the site are:

- A. None of the existing fixtures are the full cutoff type.

- B. The lights under the gas station canopy are mounted higher than 15'.
- C. Several lights on Garage and Sand Shed buildings are mounted higher than 15'.
- D. Portions of the North East property line have lighting levels above 0.5 foot candles.
- E. The lighting level at the South property line at the light fixture at the entry gate exceeds 0.5 foot candles.
- F. Lights are left on between 10:00 p.m. and sunrise.

6.3 Recommended Modifications

- A. Remove all existing fixtures and replace with full cutoff type fixtures. Mounting height shall not exceed 15'.
- B. The surface mounted lights under the canopy will be replaced by wall-mounted full cutoff type fixtures mounted to the poles supporting the canopy.
- C. Provide one new wall-mounted full cutoff fixture behind the office building.
- D. Provide two automatic time switches, one in the garage and one in the office.
- E. The automatic time switch will shut off all lights at 10:00 p.m.
- F. The automatic time switches will have an override capability to allow the lights to be turned on for off hours (emergency) operations by motion sensors as applicable and will automatically turn off again after one hour.

- G. Some select light fixtures are to be left on during night hours for security and operational needs and will accordingly require a variance as described in section 2.5. See site plan for locations.

6.4 Estimated ROM Cost

Remove thirteen lights on Garage,
Office, Sand Shed and replace with ten 10 @ \$2,500 = \$25,000

Provide one new wall-mounted
full cutoff fixture behind office 1 @ \$1,200 = \$ 1,200

Remove lights at Gas Station Canopy
and replace with wall-mounted full cutoff 2 @ \$2,500 = \$ 5,000

Automatic Timer Switch 2 @\$1,500 = \$ 3,000

Miscellaneous \$ 9,000

Subtotal \$43,200

Design Contingency (25%) \$10,800

Subtotal \$54,000

Contractor Overhead and Profit (20%) \$10,800

Subtotal \$64,800

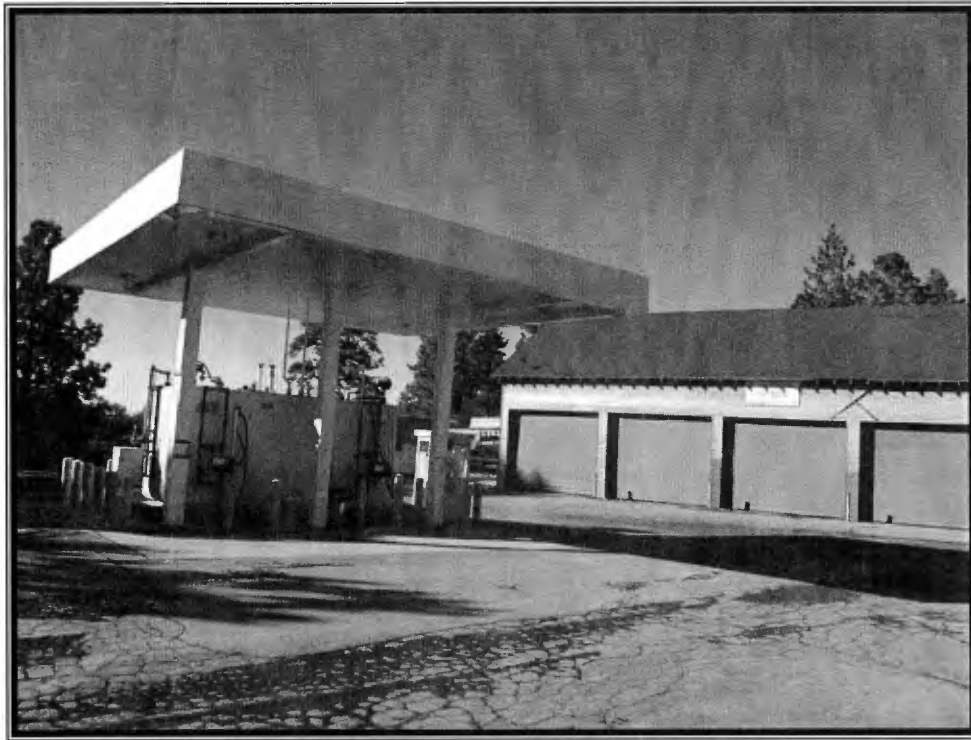
Soft Costs

Project Management, Design, Permits, Inspection (30% of total) \$19,440

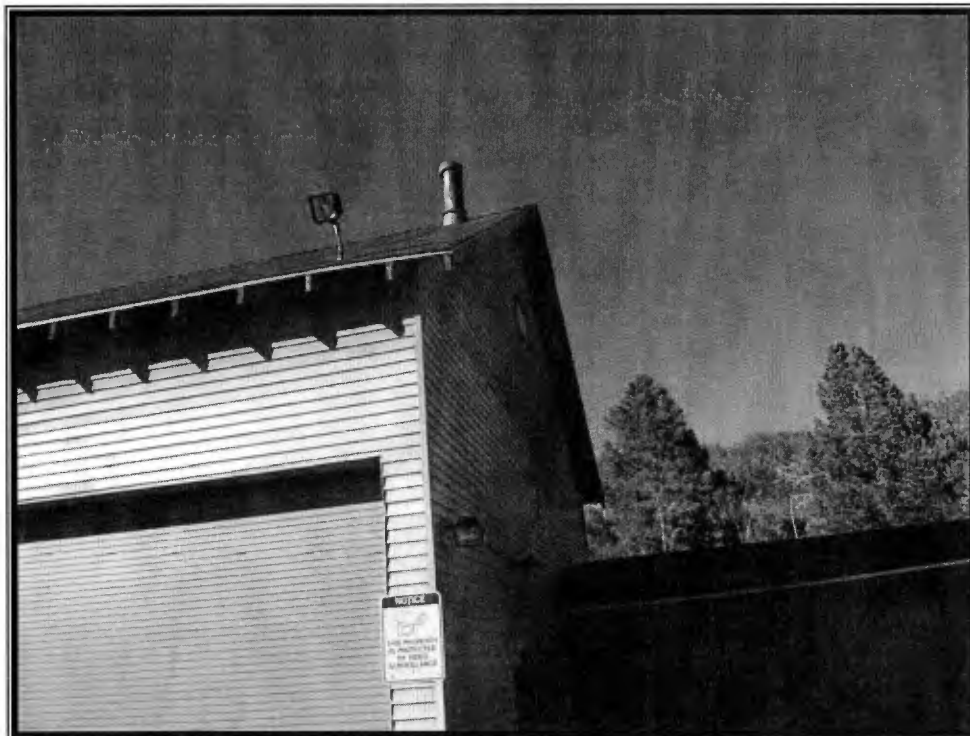
Total	\$84,240
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6.5 Photographs

The following photographs were taken during the dates of site visit stated in Section 2.2.



PH-1 Overall Site View



PH-2 Building Mounted Non-Cutoff Floodlights



PH-3 Building Mounted Floodlights At Night



PH-4 Floodlights Mounted Higher Than 15 Feet

6.6 Site Plan

The following Site Plan is based on the best available information as well as observations during site visit.

SECTION 7.0
RD 556A GORMAN

7.1 Site Description

- A. The site Address is:

49560 Gorman Post Road
Gorman, CA 93243

The site area is approximately 1.71 acres and is zoned Watershed – W. See Section 7.6 site plan.

- B. Currently most exterior lights are left on all night for security. None of the existing fixtures are the cutoff type.
- C. This facility has had six break-ins within the past 24 months. One incident included theft of 650 gallons of fuel. Therefore site security lighting at night time is very important.
- D. There are no adjacent improved properties.

7.2 Non-compliance with Proposed Ordinance

The current non-compliance conditions to the new Ordinance at the site are:

- A. None of the existing fixtures are the full cutoff type.
- B. There are six (6) floodlight fixtures mounted on the garage at approximately 18' above grade.
- C. Lights are left on between 10:00 p.m. and sunrise.

7.3 Recommended Modifications

- A. All replacement lighting fixtures shall be full cutoff type. Mounting height shall not exceed 15'.
- B. Remove six (6) fixtures mounted on the garage and replace with three (3) new fixtures as shown on site plan.
- C. Replace fixtures at the storage container and southwest corner of the office will with wall-mounted full cutoff light fixtures.
- D. Provide two automatic time switches, one at the garage and one in the office.
- E. The automatic time switch will shut off all lights at 10:00 p.m. with the exception of select fixtures which will remain on all night for security as shown on site plan.
- F. The automatic time switches will have an override capability to allow the lights to be turned on for off hours (emergency) operations by motion sensor as applicable and will automatically turn off again after one hour.
- G. Some select light fixtures are to be left on during night hours for security and operational needs and will accordingly require a variance as described in section 2.5. See site plan for locations.

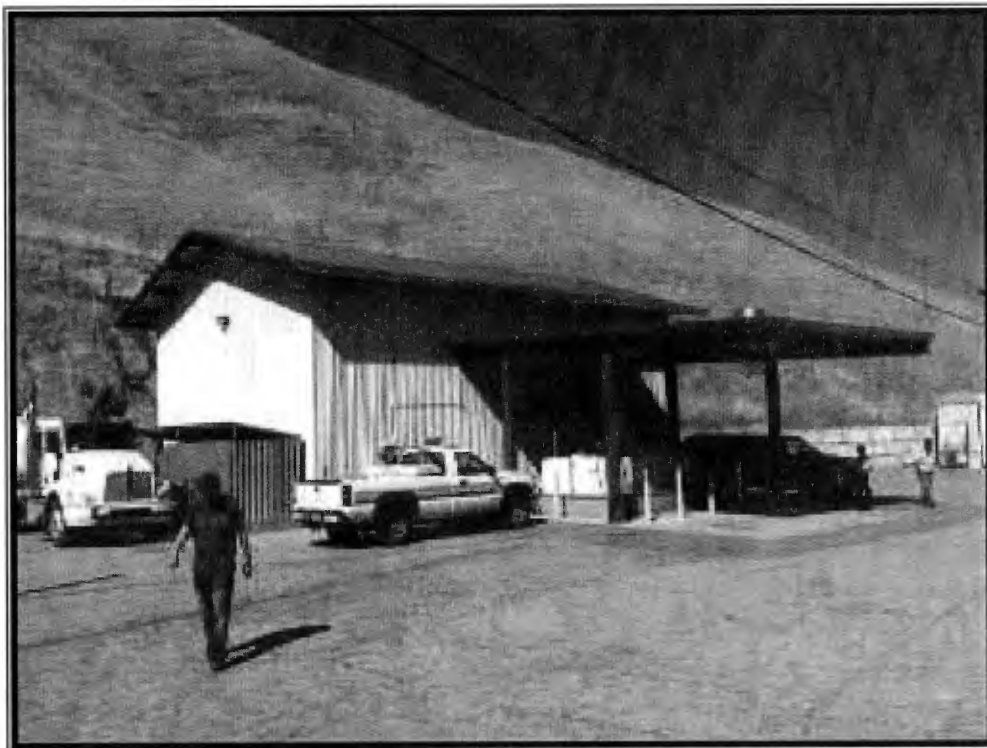
7.4 Estimated ROM Cost

Remove six lights on garage and replace with three	3 @ \$2,500 = \$7,500
Remove and replace two lights under canopy	2 @ \$2,200 = \$ 4,400

Remove and replace one light on storage container	1 @ \$2,200 = \$ 2,200
Remove and replace two lights at office	2 @ \$1,200 = \$ 2,400
Automatic Timer Switch	2 @\$1,500 = \$ 3,000
Miscellaneous	<u>\$ 5,000</u>
Subtotal	\$24,500
Design Contingency (25%)	<u>\$6,125</u>
Subtotal	\$30,625
Contractor Overhead and Profit (20%)	<u>\$6,125</u>
Subtotal	\$36,750
Soft Costs	
Project Management, Design, Permits, Inspection (30% of total)	<u>\$11,025</u>
Total	\$47,775

7.5 Photographs

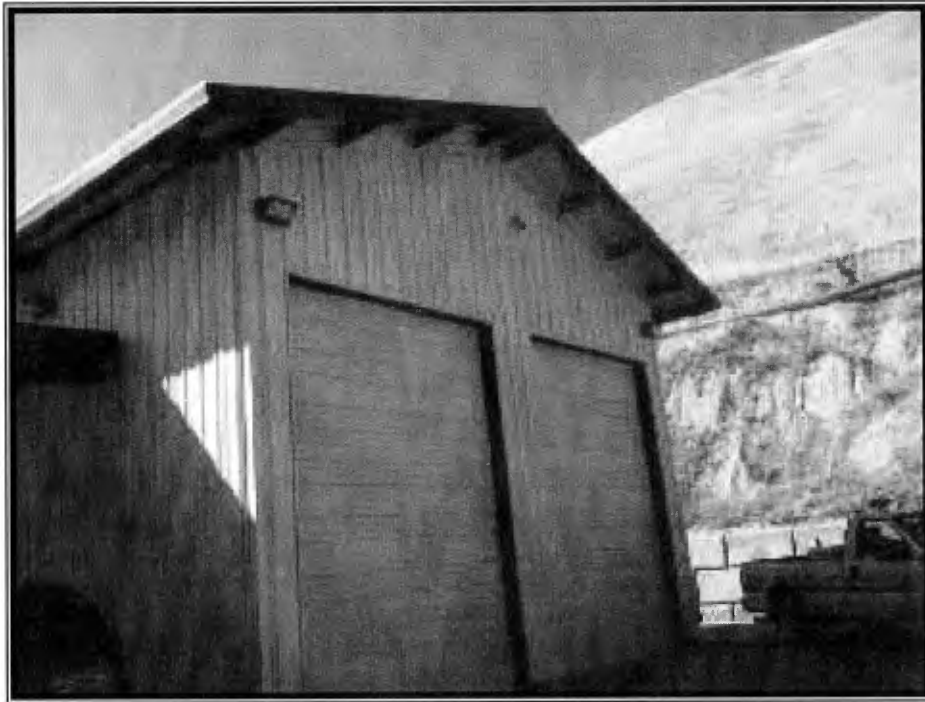
The following photographs were taken during the dates of site visit stated in Section 2.2.



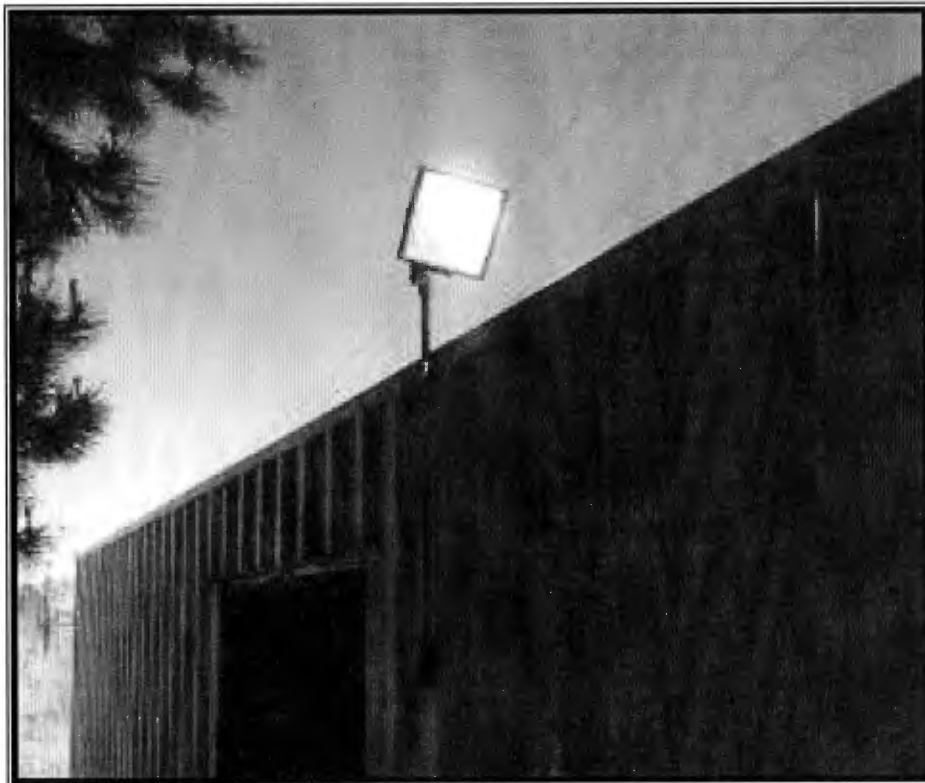
PH-1 Overall Site View



PH-2 Under Canopy Pump Station Lighting



PH-3 Building Mounted Floodlights



PH-4 Building Mounted Floor Light Behind Structure

7.6 Site Plan

The following Site Plan is based on the best available information as well as observations during site visit.

SECTION 8.0

RD 559 SAN FRANCISQUITO CANYON ROAD

8.1 Site Description

- A. The site Address is:

49560 Gorman Post Road
Gorman, CA 93243

The site area is approximately 1.71 acres and is zoned Watershed – W. See Section 7.6 site plan.

- B. Currently most exterior lights are left on all night for security. None of the existing fixtures are the cutoff type.
- C. The site is located on federal land and is shared by a California Department of Corrections and Rehabilitation (CDCR) operated Fire Camp. The camp is shown on the site plan. CDCR personnel noted that pole-mounted lighting near the east side of camp were beneficial to their security.
- D. The lighting levels at the camp are governed by security requirements. Since this is operated by the CDCR, it is part of the scope of this project.
- C. Site is surrounded by the Angeles National Forrest and there are no adjacent improved properties.

8.2 Non-compliance with Proposed Ordinance

The current non-compliance conditions to the new Ordinance at the site are:

- A. None of the existing fixtures are the full cutoff type.

B. The lights on the poles are mounted higher than 15'.

C. Lights are left on between 10:00 p.m. and sunrise.

8.3 Recommended Modifications

A. There are (3) three light fixtures mounted on each of the (2) two existing poles. One (1) fixture on each of the two (2) poles, which face east to illuminate the CDCR camp perimeter, will remain in place and continue to be controlled by photocell. Replace the other two fixtures on each pole shall be removed and replaced with fuel cutoff fixtures mounted at not-to-exceed 15' to the top of the fixture.

B. light fixtures are to be left on during night hours for security and operational needs and will accordingly require a variance as described in section 2.5. See site plan for locations.

8.4 Estimated ROM Cost

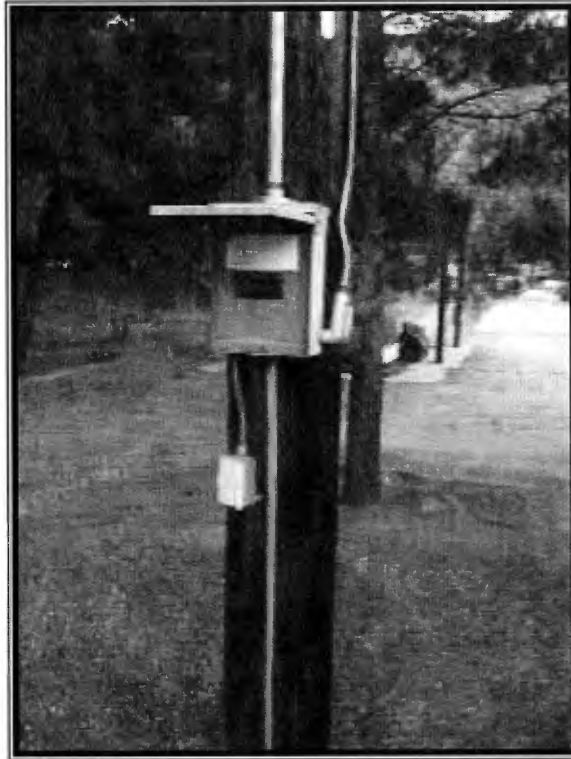
A. Ordinance Compliance

Remove and replace four four pole mounted lights	4 @\$2,200 = \$ 8,800
Automatic Timer Switches	2 @ \$2,500 = \$ 5,000
Miscellaneous	<u>\$ 5,000</u>
Subtotal	\$ 18,800

Design Contingency (25%)	<u>\$ 4,700</u>
Subtotal	\$ 23,500
Contractor Overhead and Profit (20%)	<u>\$ 4,700</u>
Subtotal	\$ 28,200
Soft Costs: Project Management, Design, Permits, Inspection (30% of total)	<u>\$ 8,460</u>
Total	\$ 36,660

8.5 Photographs

The following photographs were taken during the dates of site visit stated in Section 2.2.



PH-1 Breakers Feeding Pole Mounted Floodlighting



PH-2 Pole Mounted Floodlights

8.6 Site Plan

The following Site Plan is based on the best available information as well as observations during site visit.

SECTION 9.0
RD 559A MOUNT WILSON

9.1 Site Description

- A. The site Address is:

817 Mt Wilson Road
Mount Wilson, CA 91023

The site area is approximately 4.24 acres and is zoned Watershed – W. See Section 9.6 for the site plan.

- B. Currently most exterior lights are left on all night for security. None of the existing fixtures are the cutoff type.
- C. Site is surrounded by the Federal/National Forest lands by permit and there are no adjacent occupied improvements.

9.2 Non-compliance with Proposed Ordinance

The current non-compliance conditions to the new Ordinance at the site are:

- A. None of the existing fixtures are the full cutoff type.
- B. The lights under the gas station canopy are mounted higher than 15'.
- C. Several lights on Garage and Crew Room buildings are mounted higher than 15'.
- D. Portions of the North East property line have lighting levels above 0.5 foot candles.

- E. A floodlight fixture which is not full cut off is mounted on top of canopy and used to illuminate the site flag.
- F. Some lights are left on between 10:00 p.m. and sunrise.

9.3 Recommended Modifications

- A. Remove all existing fixtures and replace with full cutoff type fixtures. Mounting height shall not exceed 15'.
- B. The surface mounted lights under the canopy will be replaced by wall-mounted full cutoff type fixtures mounted to the poles supporting the canopy.
- C. Replace the pole-mounted floodlight fixture at gate entrance with a full cutoff type.
- D. Provide additional wall-mounted full cutoff fixture behind the house.
- E. Provide two automatic time switches, one in the garage and one in the house.
- F. The automatic time switch will shut off all lights at 10:00 p.m.
- G. The automatic time switches will have an override capability to allow the lights to be turned on for off hours (emergency) operations by motion sensor as applicable and will automatically turn off again after one hour.
- H. Some select light fixtures are to be left on during night hours for security and operational needs and will accordingly require a variance as described in section 2.5. See site plan for locations.

- G. Some select light fixtures are to be left on during night hours for security and operational needs and will accordingly require a variance as described in section 2.5. See site plan for locations.

9.4 Estimated ROM Cost

Remove ten lights on Garage,
Crew Room, house and replace with ten 10 @ \$2,500 = \$25,000

Provide one new wall-mounted
full cutoff fixture behind house 1 @ \$1,200 = \$ 1,200

Replace pole-mounted floodlight
fixture at gate with full cutoff 1 @ \$2,500 = \$ 2,500

Remove lights at Gas Station Canopy
and replace with wall-mounted full cutoff 2 @ \$2,500 = \$ 5,000

Automatic Timer Switch 2 @\$1,500 = \$ 3,000

Miscellaneous \$ 10,500

Subtotal \$47,200

Design Contingency (25%) \$11,800

Subtotal \$59,000

Contractor Overhead and Profit (20%) \$11,800

Subtotal \$70,800

Soft Costs

Project Management, Design, Permits, Inspection (30% of total) \$21,240

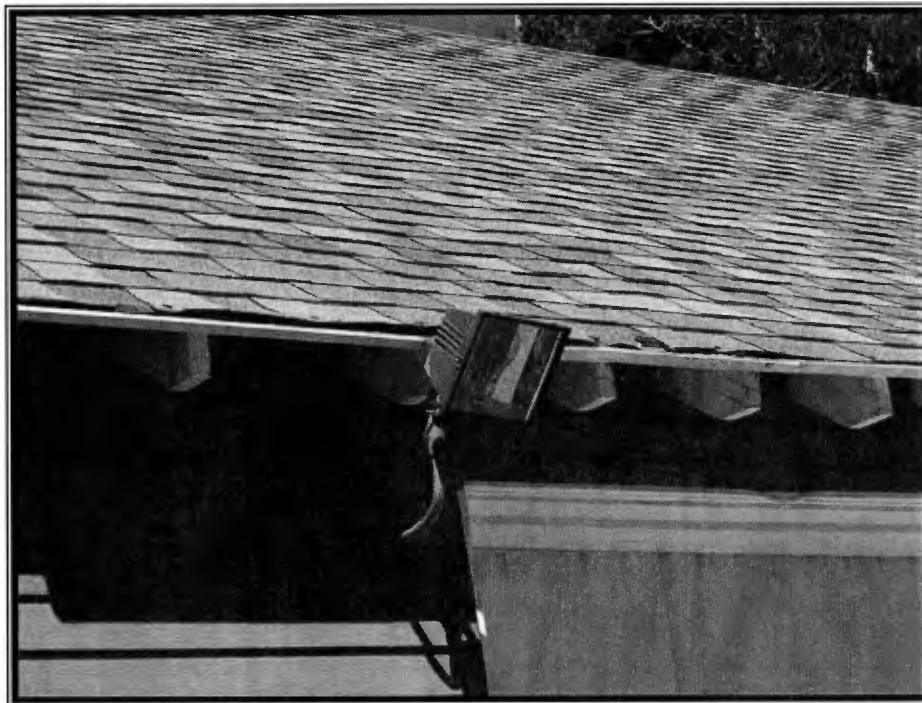
Total **\$92,040**

9.5 Photographs

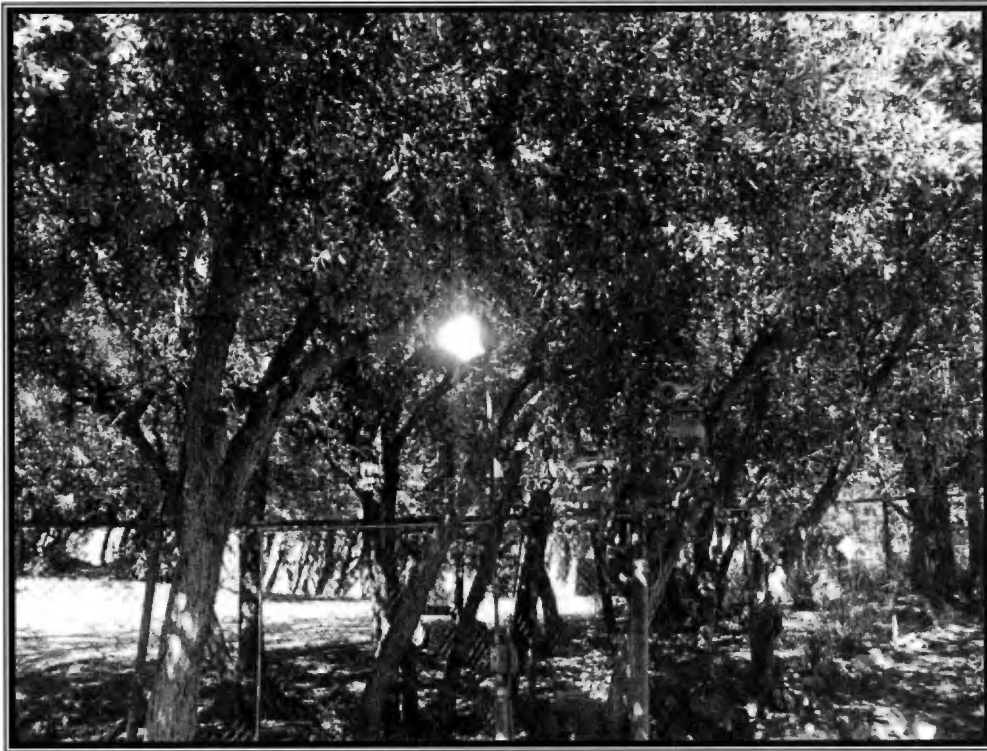
The following photographs were taken during the dates of site visit stated in Section 2.2.



PH-1 Overall Site View



PH-2 Building Mounted Floodlight



PH-3 Floodlight At Entry Gate



PH-4 Entry Gate Floodlight At Night



PH-5 Overall Site At Night



PH-6 Non Cutoff Building Mounted Fixture At Night

9.6 Site Plan

The following photographs were taken during the dates of site visit stated in Section 2.2.

SECTION 10.0
RD 557A MILL CREEK

10.1 Site Description

- A. The site Address is:

27500 Angeles Forest Highway
Palmdale, CA 93550

The site area is approximately 1.46 acres and is zoned Watershed – W. See Section 10.6 for the site plan.

- B. Currently most exterior lights are left on all night for security. None of the existing fixtures are the cutoff type.
- C. None of fixtures were operational due to electrical work being done on this site as a result of the recent fire damage. The conclusion of light trespass is based on the location and type of lighting fixtures observed during the site visit and assumed lighting levels if all fixtures were operational.
- D. Site is surrounded by the Federal/National Forest lands by permit and there are no adjacent occupied improvements.

10.2 Non-compliance with Proposed Ordinance

The current non-compliance conditions to the new Ordinance at the site are:

- A. None of the existing fixtures are the full cutoff type.
- B. The lights under the gas station canopy are mounted higher than 15'.

- C. Several lights on Garage and House buildings are mounted higher than 15'.
- D. Portions of the North property line have lighting levels above 0.5 foot candles.
- E. Lights are left on between 10:00 p.m. and sunrise.

10.3 Recommended Modifications

- A. Remove all existing fixtures and replace with full cutoff type fixtures. Mounting height shall not exceed 15'.
- B. The surface mounted lights under the canopy will be replaced by wall-mounted full cutoff type fixtures mounted to the poles supporting the canopy.
- C. Provide two automatic time switches, one in the garage and one in the house.
- D. The automatic time switch will shut off all lights at 10:00 p.m.
- E. The automatic time switches will have an override capability to allow the lights to be turned on for off hours (emergency) operations by motion sensors as applicable and will automatically turn off again after one hour.
- G. Some select light fixtures are to be left on during night hours for security and operational needs and will accordingly require a variance as described in section 2.5. See site plan for locations.

10.4 Estimated ROM Cost

Remove ten lights on Garage &
house and replace with eight

8 @ \$2,500 = \$20,000

Remove and replace two lights on

gas station canopy	2 @ \$2,500 = \$ 5,000
Automatic Timer Switch	2 @\$1,500 = \$ 3,000
Miscellaneous	<u>\$ 8,500</u>
Subtotal	\$36,500
Design Contingency (25%)	<u>\$9,125</u>
Subtotal	\$45,625
Contractor Overhead and Profit (20%)	<u>\$9,125</u>
Subtotal	\$54,750
Soft Costs	
Project Management, Design, Permits, Inspection (30% of total)	<u>\$16,425</u>
Total	\$71,175

10.5 Photographs

The following photographs were taken during the dates of site visit stated in Section 2.2. Please note that the lighting fixture were not operable at the time of visit, therefore night time photos are not available.



PH-1 Pump Station Canopy



PH-2 Building Mounted Flood Lights



PH-3 Typical Non Cutoff Floodlight

10.6 Site Plan

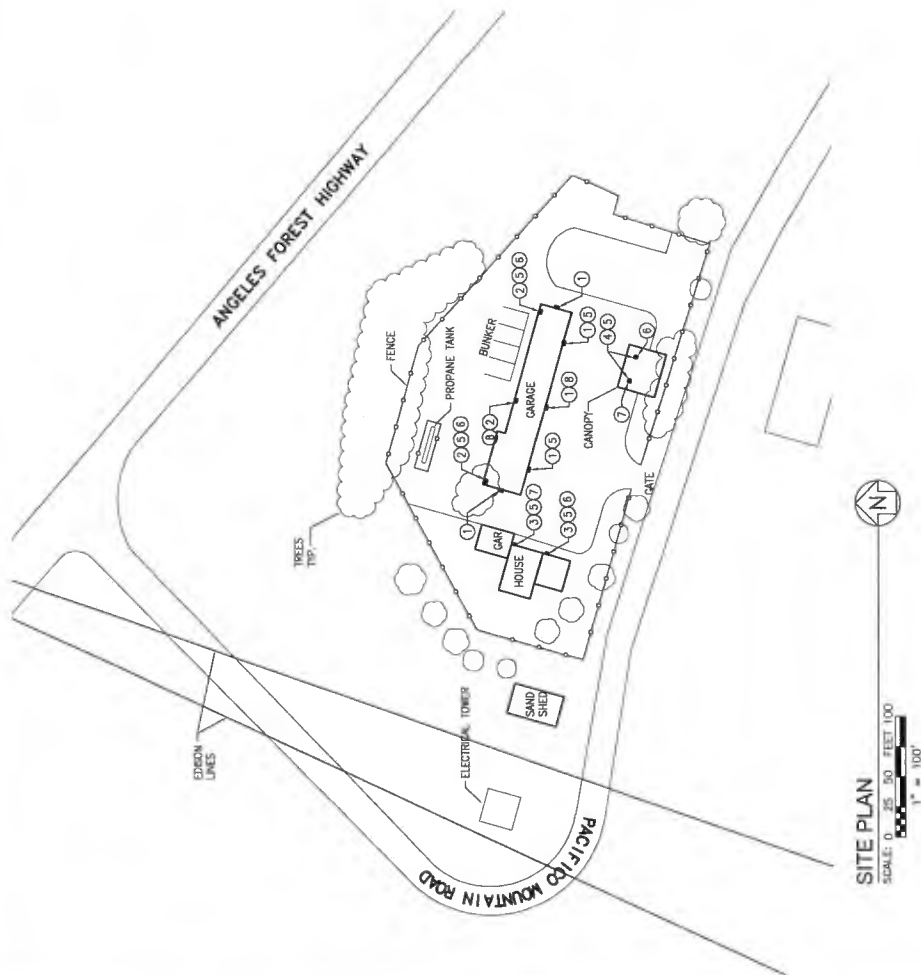
The following Site Plan is based on the best available information as well as observations during site visit.

[illegible]

- ① 250W HIGH PRESSURE SODIUM FLOODLIGHT MOUNTED ON TO THE SIDE OF BUILDING, NOT CUT-OFF TYPE, WALL MOUNTED & APPROXIMATELY 17' - ALL ON PHOTOCELLS
- ② 250W HIGH PRESSURE SODIUM DIAL FLOODLIGHT MOUNTED ON THE ROOF OF THE BUILDING, NOT CUT-OFF TYPE, MOUNTED & APPROXIMATELY 18'-6" - ON - ALL ON PHOTOCELLS
- ③ 100W HIGH PRESSURE SODIUM SMALL FLOODLIGHT WALL MOUNTED NEAR BUILDING DOOR, NOT CUT-OFF TYPE, MOUNTED & APPROXIMATELY 9' - ALL ON PHOTOCELLS
- ④ 100W METAL HALIDE LIGHT SURFACE MOUNTED UNDER THE CANOPY OF PUMP STATION MOUNTED 17' - ALL ON PHOTOCELLS
- ⑤ LIGHT FIXTURE TO BE REPAIRED
- ⑥ LIGHT FIXTURE ON MOTION SENSORS, ALL FIXTURES NOT COVERED BY THIS NOTE OR REMOTE ARE TO BE ON THE SWITCH
- ⑦ LIGHT FIXTURE TO BE LEFT ON OVERNIGHT FOR SITE SECURITY, ALL FIXTURES NOT COVERED BY THIS NOTE OR REMOTE ⑥ ARE TO BE ON TIME SWITCH
- ⑧ LIGHT FIXTURE TO BE REMOVED

WATAGE AND FUTURE TYPE ARE BASED ON VISUAL OBSERVATION AND ARE ESTIMATED ONLY.

DUE TO ON-GOING CONSTRUCTION, SOME OF THE LIGHTING FIXTURES IN THIS FACILITY WERE OPERABLE AT TIME OF VISIT.



SECTION 11.0
RD 555 LAKE LOS ANGELS

11.1 Site Description

- A. The site Address is:

17341 East Avenue J
Lancaster, CA 93535

The site area is approximately 0.42 acres and is zoned Agricultural – A1. See Section 11.6 for the site plan.

- B. Currently most exterior lights are left on all night for security. None of the existing fixtures are the cutoff type.
- C. This site has been broken into twice in 4 years, including loss of air conditioning unit for office and theft of skid steer loader.
- D. There are no improved properties within a quarter of a mile.

11.2 Non-compliance with Proposed Ordinance

The current non-compliance conditions to the new Ordinance at the site are:

- A. None of the existing fixtures are the full cutoff type.
- B. The lights under the gas station canopies and on the South Side of the garage are mounted higher than 15'.

- C. Majority of flood lights mounted on to Garage and Office building as well as to the posts of the Wash Rack canopy are mounted higher than 15'.
- D. Portions of both the North and South property lines have lighting levels above 0.5 foot candles.
- E. Lights are left on between 10:00 p.m. and sunrise.

11.3 Recommended Modifications

- A. Remove all existing fixtures for Garage and Office building and replace with full cutoff type fixtures. Mounting height shall not exceed 15'.
- B. The surface mounted lights under the canopy will be replaced by wall-mounted full cutoff type fixtures mounted to the poles supporting the canopy. Similarly, wall-mounted full cutoff type fixtures will be provided for the emulsion tank area.
- C. Replace the existing pole-mounted floodlight fixtures at the Southern gate with full cutoff type fixtures. Mounting height shall not exceed 15'.
- D. Remove all existing fixtures for Wash Rack canopy and replace with one pendant mounted full cutoff fixture. Mounting height shall not exceed 15'.
- E. Provide one automatic time switches in the garage.
- F. The automatic time switch will shut off all lights at 10:00 p.m.
- G. The automatic time switches will have an override capability to allow the lights to be turned on for off hours (emergency) operations by motion sensors as applicable and will automatically turn off again after one hour.

- H. Some select light fixtures are to be left on during night hours for security and operational needs and will accordingly require a variance as described in section 2.5. See site plan for locations.

11.4 Estimated ROM Cost

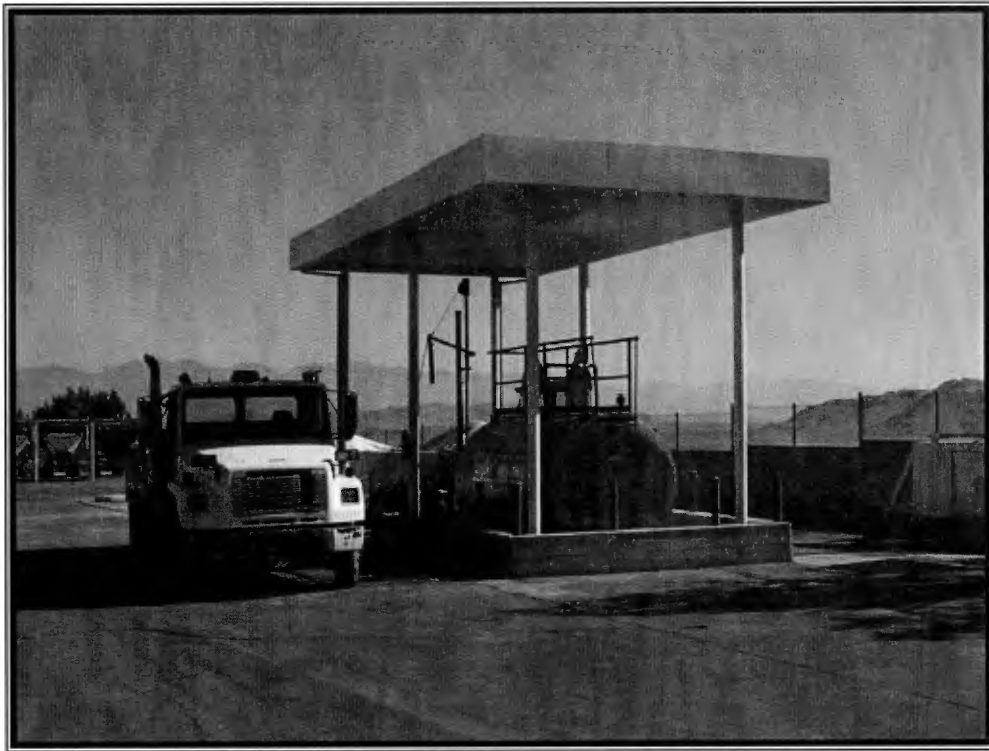
Remove nine lights on Garage and replace with six	6 @ \$2,500 = \$15,000
Remove and replace four lights on Gas Station and Emulsion Tank Canopy	4 @ \$2,500 = \$ 10,000
Remove and replace pole-mounted floodlights with full cutoff fixtures	2 @ \$2,500 = \$ 5,000
Automatic Timer Switch	1 @\$1,500 = \$ 1,500
Miscellaneous	<u>\$ 10,500</u>
Subtotal	\$42,000
Design Contingency (25%)	<u>\$10,500</u>
Subtotal	\$52,500
Contractor Overhead and Profit (20%)	<u>\$10,500</u>
Subtotal	\$63,000
Soft Costs	
Project Management, Design, Permits, Inspection (30% of total)	<u>\$18,900</u>

Total

\$54,900

11.5 Photographs

The following photographs were taken during the dates of site visit stated in Section 2.2.



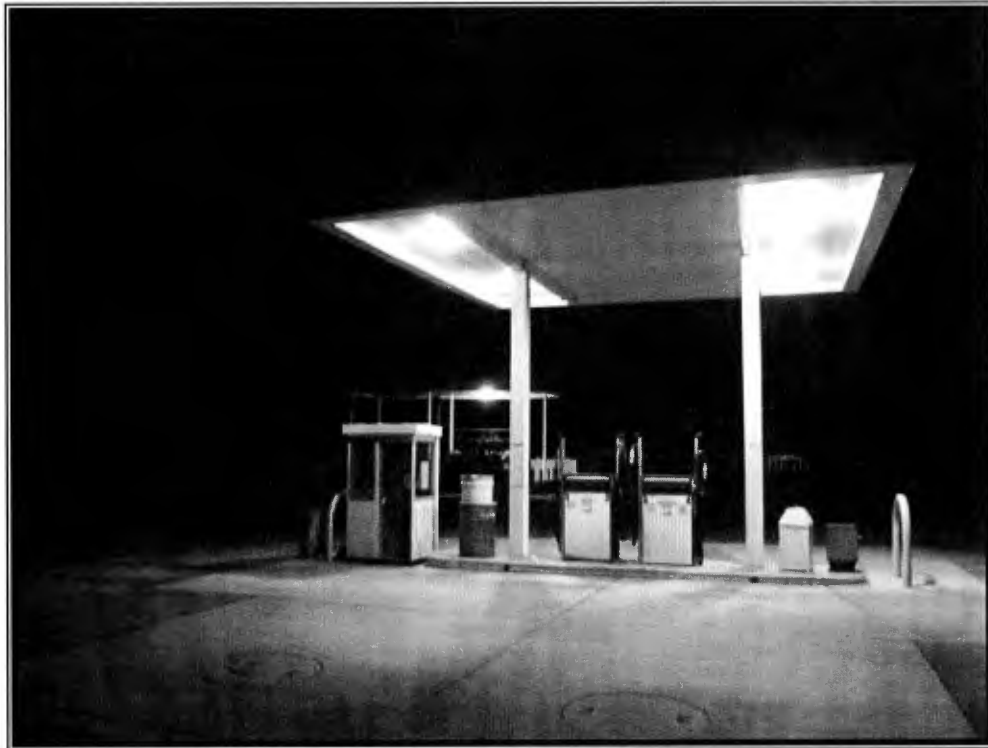
PH-1 Under Canopy Lighting At Pump Station



PH-2 Floodlighting Under Wash Rack Canopy



PH-3 Pole Mounted Floodlights



PH-4 Pump Station Canopy Lighting At Night



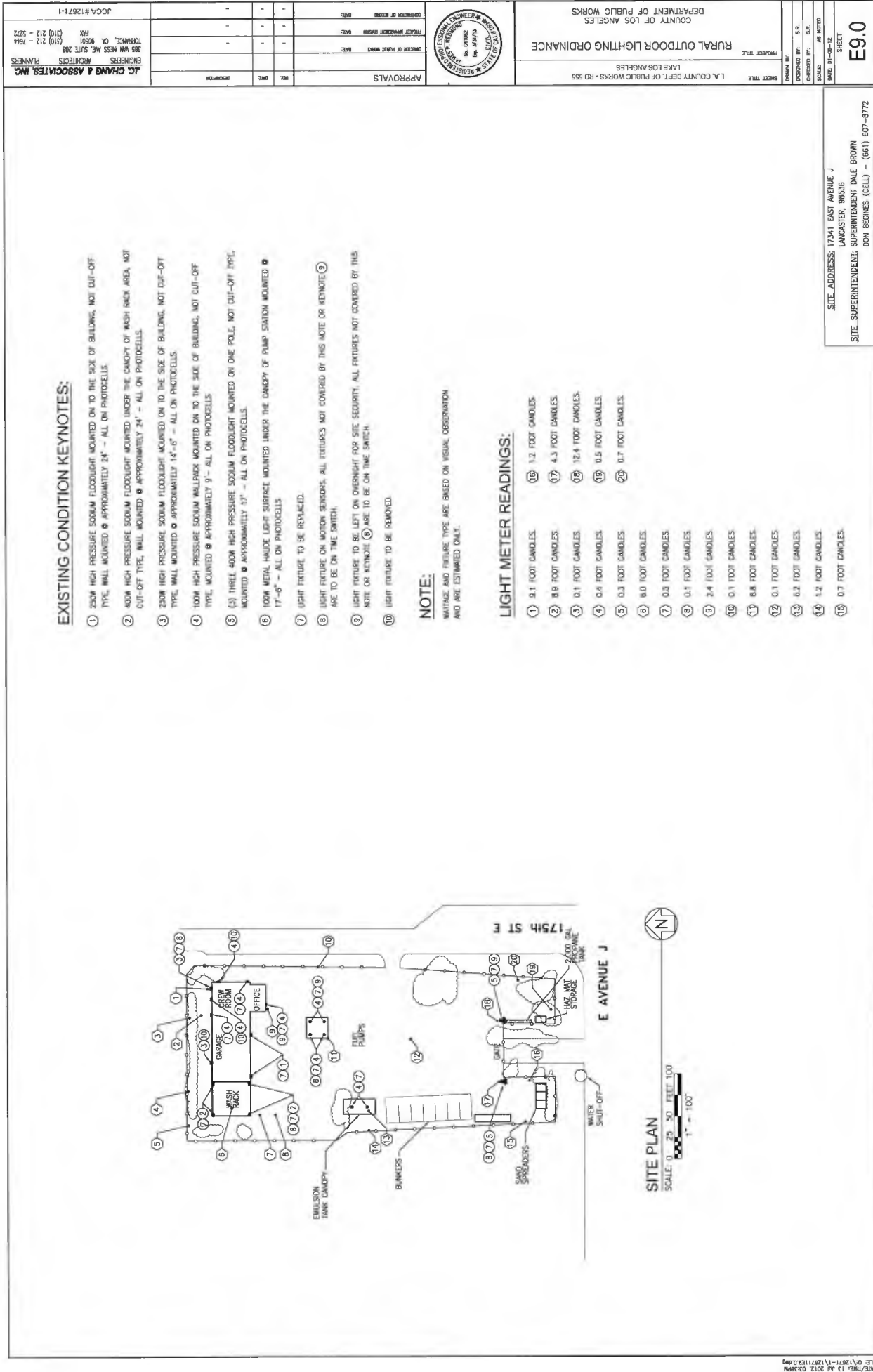
PH-5 Non Cutoff Building Lighting At Night



PH-6 Light Trespass At North Boundary Fence

11.6 Site Plan

The following Site Plan is based on the best available information as well as observations during site visit.



EXISTING CONDITION KEYNOTES:

- 1 250W HIGH PRESSURE SODIUM FLOODLIGHT MOUNTED ON TO THE SIDE OF BUILDING, NOT CUT-OFF TYPE, MOUNTED @ APPROXIMATELY 24' - ALL ON PHOTOCELLS
- 2 400W HIGH PRESSURE SODIUM FLOODLIGHT MOUNTED UNDER THE CANOPY OF WASH BLDG AREA, NOT CUT-OFF TYPE, MOUNTED @ APPROXIMATELY 24' - ALL ON PHOTOCELLS
- 3 250W HIGH PRESSURE SODIUM FLOODLIGHT MOUNTED ON TO THE SIDE OF BUILDING, NOT CUT-OFF TYPE, MOUNTED @ APPROXIMATELY 14'-6" - ALL ON PHOTOCELLS
- 4 100W HIGH PRESSURE SODIUM WALLPACK MOUNTED ON TO THE SIDE OF BUILDING, NOT CUT-OFF TYPE, MOUNTED @ APPROXIMATELY 9' - ALL ON PHOTOCELLS
- 5 (3) THREE 400W HIGH PRESSURE SODIUM FLOODLIGHT MOUNTED ON ONE POLE, NOT CUT-OFF TYPE, MOUNTED @ APPROXIMATELY 37' - ALL ON PHOTOCELLS
- 6 100W METAL HALIDE LIGHT SURFACE MOUNTED UNDER THE CANOPY OF PUMP STATION MOUNTED @ 17'-6" - ALL ON PHOTOCELLS
- 7 LIGHT FIXTURE TO BE REPLACED.
- 8 LIGHT FIXTURE ON MOTION SENSORS, ALL FIXTURES NOT COVERED BY THIS NOTE OR KEYNOTE (3) ARE TO BE ON TIME SWITCH.
- 9 LIGHT FIXTURE TO BE LEFT ON OVERNIGHT FOR SITE SECURITY, ALL FIXTURES NOT COVERED BY THIS NOTE OR KEYNOTE (8) ARE TO BE ON TIME SWITCH.
- 10 LIGHT FIXTURE TO BE REMOVED.

NOTE:

WAITING AND FUTURE TYPE ARE BASED ON VISUAL OBSERVATION AND ARE ESTIMATED ONLY.

LIGHT METER READINGS:

- 1 9.1 FOOT CANDLES
- 2 8.9 FOOT CANDLES
- 3 0.1 FOOT CANDLES
- 4 0.4 FOOT CANDLES
- 5 0.3 FOOT CANDLES
- 6 8.0 FOOT CANDLES
- 7 0.3 FOOT CANDLES
- 8 0.1 FOOT CANDLES
- 9 2.4 FOOT CANDLES
- 10 0.1 FOOT CANDLES
- 11 8.8 FOOT CANDLES
- 12 0.1 FOOT CANDLES
- 13 6.2 FOOT CANDLES
- 14 1.2 FOOT CANDLES
- 15 0.7 FOOT CANDLES
- 16 1.2 FOOT CANDLES
- 17 4.3 FOOT CANDLES
- 18 12.4 FOOT CANDLES
- 19 0.5 FOOT CANDLES
- 20 0.7 FOOT CANDLES

SITE PLAN
SCALE: 0" = 50' 1" = 100'
1" = 100'

PROJECT TITLE RURAL OUTDOOR LIGHTING ORDINANCE		SHEET TITLE L.A. COUNTY DEPT. OF PUBLIC WORKS - RD 555 LAKE LOS ANGELES	
APPROVALS DESIGNER: [Signature] CHECKED: [Signature] IN CHARGE: [Signature]		DESIGNED BY: S.R. CHECKED BY: S.R. SCALE: AS NOTED DATE: 01-08-12	
J.C. CHANG & ASSOCIATES, INC. ENGINEERS ARCHITECTS PLANNERS 285 W. WESS AVE. SUITE 200 TORRANCE, CA 90503 (310) 212-1964 (310) 212-3272		SHEET E9.0	

SITE ADDRESS: 17241 EAST AVENUE J
LANCASTER, 93536
SITE SUPERINTENDENT: DALE BROWN
DON BEDNIES (CELL) - (951) 607-8772

SECTION 12.0
RD 555A LANCASTER

12.1 Site Description

- A. The site Address is:

45122 N 70th Street East,
Lancaster, CA 93535

The site area is approximately 0.9 acres and is zoned Agricultural – A2. See Section 12.6 for the site plan.

- B. Currently most exterior lights are left on all night for security. None of the existing fixtures are the cutoff type.
- C. Several fixtures were not operational due to burned out lamps or ballasts during site visit, therefore the study of light trespass is based in part on assumed lighting levels if all fixtures were operational.

12.2 Non-compliance with Proposed Ordinance

The current non-compliance conditions to the new Ordinance at the site are:

- A. None of the existing fixtures are the full cutoff type.
- B. Some lights are left on between 10:00 p.m. and sunrise.

12.3 Recommended Modifications

- A. Remove all existing fixtures and replace with full cutoff type fixtures. Mounting height shall not exceed 15'.

- B. Provide two automatic time switches, one in each garage.
- C. The automatic time switch will shut off all lights at 10:00 p.m.
- D. The automatic time switches will have an override capability to allow the lights to be turned on for off hours (emergency) operations by motion sensors as applicable and will automatically turn off again after one hour.
- E. Some select light fixtures are to be left on during night hours for security and operational needs and will accordingly require a variance as described in section 2.5. See site plan for locations.

12.4 Estimated ROM Cost

Remove six lights on Garages and replace with four	4 @ \$2,500 = \$10,000
Automatic Time Switch	1 @ \$1,500 = \$1,500
Miscellaneous	<u>\$ 3,500</u>
Subtotal	\$15,000
Design Contingency (25%)	<u>\$3,750</u>
Subtotal	\$18,750
Contractor Overhead and Profit (20%)	<u>\$3,750</u>
Subtotal	\$22,500

Soft Costs

Project Management, Design, Permits, Inspection	<u>\$8,000</u>
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Total	\$30,500
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12.5 Photographs

The following photographs were taken during the dates of site visit stated in Section 2.2. Please note that only two floodlights were operational during the time of visit.



PH-1 Building mounted Floodlights



PH-2 Building Mounted Floodlights



PH-3 Building Mounted Floodlight At Night

PROJECT TITLE RURAL OUTDOOR LIGHTING ORDINANCE		COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS	
SHEET TITLE L.A. COUNTY DEPT. OF PUBLIC WORKS - RD RD555A LANCASTER		COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS	
DRAWN BY DATE	CHECKED BY DATE	DESIGNED BY DATE	APPROVED BY DATE
JCC #12671-1 JCC #12671-1 JCC #12671-1		JCC #12671-1 JCC #12671-1 JCC #12671-1	

SITE ADDRESS: 4512 N 70TH STREET EAST
 LANCASTER, 93335
 SITE SUPERINTENDENT: DALE BROWN - (861) 727-1528
 DON BROWN - (861) 807-8772 (CELL)

E10.0

EXISTING CONDITION KEYNOTES:

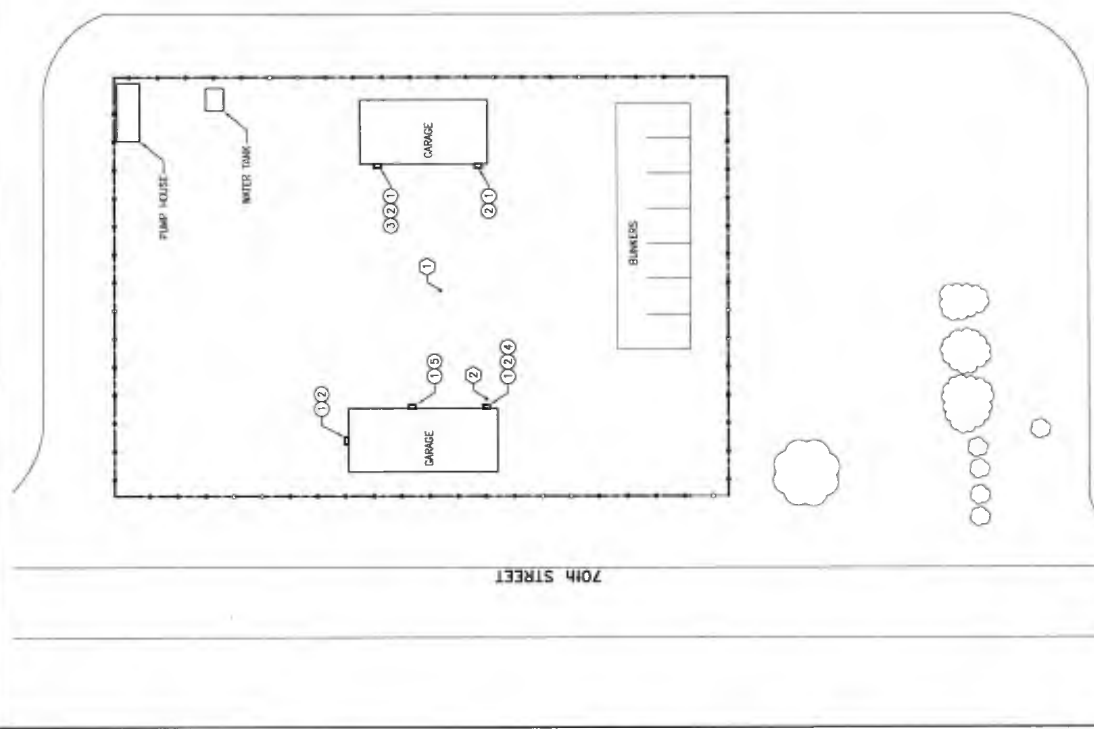
- 250W HIGH PRESSURE SODIUM FLOODLIGHT MOUNTED ON TO THE SIDE OF BUILDING, NOT CUT-OFF TYPE, BALL MOUNTED @ APPROXIMATELY 12'-6" - ALL ON PHOTOCELLS.
- LIGHT FIXTURE TO BE REPLACED.
- LIGHT FIXTURE ON MOTION SENSORS, ALL FIXTURES NOT COVERED BY THIS NOTE OR KEYNOTE ④ ARE TO BE ON TIME SWITCH.
- LIGHT FIXTURE TO BE LEFT ON OVERSIGHT FOR SITE SECURITY, ALL FIXTURES NOT COVERED BY THIS NOTE OR KEYNOTE ⑤ ARE TO BE ON TIME SWITCH.
- LIGHT FIXTURE TO BE REMOVED.

NOTE:

FIXTURE AND FIXTURE TYPE ARE BASED ON VISUAL OBSERVATION
 AND ARE ESTIMATED ONLY.

LIGHT METER READINGS:

- 0.1 FOOT CANDLES.
- 2.1 FOOT CANDLES.



SITE PLAN
 SCALE: 0' 20' FEET 50'
 1" = 50'

12.6 Site Plan

The following Site Plan is based on the best available information as well as observations during site visit.

SECTION 13.0

NOTES ON ESTIMATED COSTS

- A. The proposed new light fixtures are LED. While these have a higher cost to purchase they have several benefits including much longer life (about twice) than other types. They are also much more efficient producing the same light levels for much lower power consumption. This will eliminate the need to upgrade the electrical service at the maintenance yards.
- B. The unit costs shown in the cost estimates for each fixture type include labor costs for installation. In the case of pole mounted fixtures they include the pole, arm, fixture, and foundation.
- C. Design Contingencies are allowance to account for the preliminary nature of the analysis. It accounts for additional costs from unforeseen conditions such as hazardous materials removal and other hidden costs.

16 July 2012

**RURAL OUTDOOR LIGHTING ORDINANCE
VINCENT GRADE / ACTION METROLINK STATION
COST IMPACT ANALYSIS**

REPORT

Prepared for:

**LOS ANGELES COUNTY
DEPARTMENT OF PUBLIC WORKS**
Architectural Engineering Division
900 South Fremont Avenue
Alhambra, California 91803
Telephone: (626) 458-2566
Facsimile: (626) 979-5311



Prepared by:

J.C. CHANG & ASSOCIATES, INC.
Engineers ▪ Architect ▪ Planners
385 Van Ness Avenue, Suite 208
Torrance, California 90501
Telephone: (310) 212-7644
Facsimile: (310) 212-5272
www.jccainc.com
JCCA 12670-9

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- I. Site Plans
- II. Photographs

1.0 EXECUTIVE SUMMARY

The County of Los Angeles is considering adopting a new Rural Outdoor Lighting Ordinance initiated by the Department of Regional Planning. This report evaluates the cost impact on the Department of Public Works (DPW) to upgrade the Vincent Grade / Acton Metrolink Station to comply with the proposed ordinance.

The Vincent Grade / Acton Metrolink station is located in the rural area and therefore impacted by the new ordinance.

While the existing parking area lighting fixtures in Vincent Grade / Acton Metrolink Station are full cut-off types, the total mounting height is 27' (base and pole) and would need to be reduced to 15' to comply with the ordinance. The train platform walkway lighting fixtures are installed on 16' poles at about 15', but they are not full cut-off types. In addition, several surface mounted fluorescent lighting fixtures are installed in the canopy type ceiling of open waiting areas on the platform. Pole-mounted full cut-off lighting fixtures are installed on the road leading to the Metrolink station site are used as street lighting and will not be affected based on the provisions of the ordinance.

Also, current lighting fixture control systems do not comply with the ordinance.

Estimated Rough Order of Magnitude (ROM) Costs:

A.	Vincent Grade / Acton Metrolink Station	\$ 77,025
----	---	-----------

2.0 SCOPE OF THE ANALYSIS

- 2.1** The County of Los Angeles is considering adopting a new Ordinance amending Title 22 of the County Code. The Ordinance will establish a Rural Outdoor Lighting District that will establish guidelines governing outdoor lighting. The main objectives include curtailing light pollution, preventing light trespass onto adjoining properties, promoting dark skies, conserving energy, etc., while permitting reasonable uses of outdoor lighting for night time safety, security, productivity, and enjoyment.
- 2.2** DPW Vincent Grade / Acton Metrolink Station is located in a rural area and will be affected by the ordinance.
- 2.3** The scope of this report is to:
- A. Review the requirements of the Ordinance and analyze two of the sites to confirm existing installation and changes required to comply with the Ordinance.
 - B. Provide a rough order of magnitude (ROM) cost estimate to implement the required changes.
 - C. The Metrolink Station is zoned A1 – Light Agricultural.
- 2.4** The main provisions of the new Ordinance as it affects the Vincent Grade / Acton Metrolink Station can be summarized as follows:
- A. Outdoor lighting fixtures must be fully shielded type (22.44.540 C). That is a light fixture that emits no light in the area above a horizontal plane passing through the lowest point of the fixture and not more than 10 percent of its light in the area between zero and 10 degrees below such horizontal plane. A full cutoff fixture is a fully shielded fixture of a specific design, usually a box or oval shape with a flat bottom.
 - B. Light trespass measured at the property line must not exceed 0.5 foot-candles where the adjoining property is zoned residential, open space, agricultural or public right-of-way.
For other adjoining zoning the limit is 1.0 foot-candles.
 - C. The fixture height from ground level to the top of the fixture (22.44.450 D) is limited to:
 - 1. Residential, agricultural, open space and watershed:
20 Feet – except if over 15 feet the fixture lumens is limited to 400. This effectively limits the height to 15 feet, since 400 lumens is an extremely low lighting level (equivalent to a 40-watt incandescent lamp).
 - D. Outdoor lighting must be turned off between the hours of 10 p.m. and sunrise. There must be an automatic time switch control to turn the lights off. The timer must be capable of separate schedules for weekdays and weekends. (22.44.550)

Exceptions:

1. Where there are night time operations the lights must be turned off within one hour of close of business.
2. Security and operations lighting for public facilities. (22.44.550 C.4.c.).

2.5 The site was visited by JCCA staff (Shay Redmond, Sevag Avanesian) and DPW Senior Electrical Engineer (John Fallon) on Thursday 05/31/2012. Existing conditions were recorded and are shown on the drawings included in Appendix 1. Light level readings were taken after dark and the existing fixture types were noted. The cost estimates herein were prepared based on the input from the lighting consultant and from lighting contractors.

3.0 ~~Lake Hughes Wastewater Treatment Plant~~

3.1 Site Description

- A. The site Address is:
730 W Sierra Highway,
Acton, CA 93510

The site area is approximately 0.9 acres. See Appendix I for the Site plan.
- B. Currently most exterior lights are left on all night for security. All lighting is controlled by a timer located near electrical panels. Some of the existing fixtures are the not cutoff type.

3.2 Non-compliance with Proposed Ordinance

The current non-compliance conditions to the new Ordinance at the site are:

- A. Pole-mounted lighting fixtures for the parking area are mounted higher than 15'.
- B. Pole-mounted lighting fixtures for the train platform walkway are not full cut-off type.
- C. Portions of property line have lighting levels above 0.5 foot candles.
- F. Lights are left on between 10:00 p.m. and sunrise.

3.3 Recommended Modifications

- A. Considering the security function of the parking lot lighting fixtures and the fact that a compliant installation will greatly increase the number of poles and fixtures required to produce the appropriate illumination level and the fact that this is a public facility, it is likely that a variance can be obtained for the parking lot lighting fixtures.
- B. The train platform walkway lighting fixtures would need to be modified or replaced by full cut-off type fixtures. Existing poles and circuits will be reused.
- C. Program the existing automatic time switches to shut off all lights between the hours of 11:30 p.m. and 3:30 a.m to accommodate the train schedule which begins before sunrise and ends after 10:00 p.m.
- D. The automatic time switches will have an override capability to allow the lights to be turned on for off hours (emergency) operations and will automatically turn off again after one hour.

3.4 Estimated ROM Cost

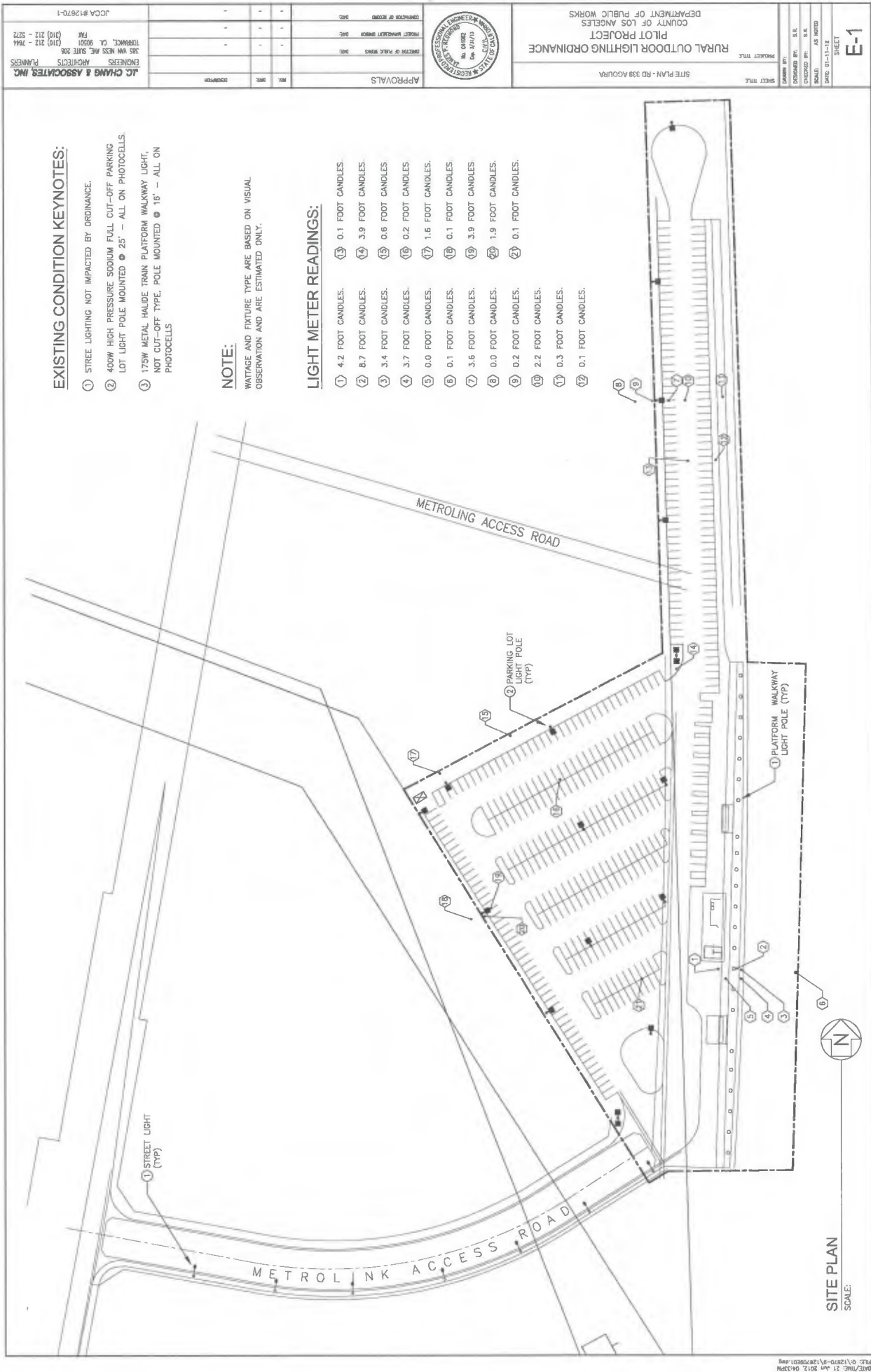
Replace all pole-mounted lights On train platform with full cut-off	22@ \$1,500 =	\$33,000
Miscellaneous		<u>\$ 6,500</u>
	Subtotal	\$39,500
Design Contingency (25%)		<u>\$9,875</u>
	Subtotal	\$49,375
Contractor Overhead and Profit (20%)		<u>\$9,875</u>
	Subtotal	\$59,250
Soft Costs Project Management, Design, Permits, Inspection (30% of total)		<u>\$17,775</u>
	Total	\$77,025

4.0 Notes on Estimated Costs

- A. The proposed new light fixtures are LED. While these have a higher cost to purchase they have several benefits including much longer life (about twice) than other types. They are also much more efficient producing the same light levels for much lower power consumption. This will eliminate the need to upgrade the electrical service at the maintenance yards.
- B. Design Contingencies are allowance to account for the preliminary nature of the analysis. It accounts for additional costs from unforeseen conditions such as hazardous materials removal and other hidden costs.

APPENDIX I

SITE PLANS



EXISTING CONDITION KEYNOTES:

- ① STREET LIGHTING NOT IMPACTED BY ORDINANCE.
- ② 100W HIGH PRESSURE SODIUM FULL CUT-OFF PARKING LOT LIGHT POLE MOUNTED @ 25' - ALL ON PHOTOCELLS.
- ③ 175W METAL HALIDE TRAIN PLATFORM WALKWAY LIGHT, NOT CUT-OFF TYPE POLE MOUNTED @ 16' - ALL ON PHOTOCELLS

NOTE:

WATTAGE AND FIXTURE TYPE ARE BASED ON VISUAL OBSERVATION AND ARE ESTIMATED ONLY.

LIGHT METER READINGS:

- ① 4.2 FOOT CANDLES.
- ② 8.7 FOOT CANDLES.
- ③ 3.4 FOOT CANDLES.
- ④ 3.7 FOOT CANDLES.
- ⑤ 0.0 FOOT CANDLES.
- ⑥ 0.1 FOOT CANDLES.
- ⑦ 3.6 FOOT CANDLES.
- ⑧ 0.0 FOOT CANDLES.
- ⑨ 0.2 FOOT CANDLES.
- ⑩ 2.2 FOOT CANDLES.
- ⑪ 0.3 FOOT CANDLES.
- ⑫ 0.1 FOOT CANDLES.
- ⑬ 0.1 FOOT CANDLES.
- ⑭ 3.9 FOOT CANDLES.
- ⑮ 0.6 FOOT CANDLES.
- ⑯ 0.2 FOOT CANDLES.
- ⑰ 1.6 FOOT CANDLES.
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APPROVALS

DESIGNER	DATE	REVISION

PROJECT TITLE

RURAL OUTDOOR LIGHTING ORDINANCE

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

SITE PLAN - RD 339 AGOURA

ENGINEER'S SEAL

J.C. CHANG & ASSOCIATES, INC.

PLANNERS

ARCHITECTS

ENGINEERS

205 VAN NESS AVE. SUITE 208

TORRANCE, CA 90501

TEL: (310) 212-7844

FAX: (310) 212-7872

JCCA #12670-1

DATE

DATE: 01-11-12

SCALE

SCALE: AS NOTED

PROJECT TITLE

PROJECT TITLE

DESIGNER

DESIGNER

REVISION

REVISION

DATE

DATE

REVISION

REVISION

DATE

DATE

REVISION

REVISION

APPENDIX II

PHOTOGRAPHS



PH - 1: Typical Parking Lot Pole Mounted Fixture



PH - 2: Train Platform Walkway Light Fixtures



PH - 3: All Light Fixtures Are Photo Cell Controlled



PH - 4: Platform Walkway Fixture Are Not Full Cut-off



PH - 5: Non Cut-off Platform Fixture Requiring Replacement



PH - 6: Night Time Photo Of Parking Lot Illumination



PH - 7: Night Time Illumination of Back Parking Lot



PH - 8: Platform Walkway Illumination At Night Time

17 July 2012

RURAL OUTDOOR LIGHTING ORDINANCE COUNTY DAMS COST IMPACT ANALYSIS

REPORT

Prepared for:

LOS ANGELES COUNTY
DEPARTMENT OF PUBLIC WORKS
Architectural Engineering Division
900 South Fremont Avenue
Alhambra, California 91803
Telephone: (626) 458-2566
Facsimile: (626) 979-5311



Prepared by:

J.C. CHANG & ASSOCIATES, INC.
Engineers • Architect • Planners
385 Van Ness Avenue, Suite 208
Torrance, California 90501
Telephone: (310) 212-7644
Facsimile: (310) 212-5272
www.jccainc.com

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8.5	Photographs

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9.0 Notes on Estimated Costs

SECTION 1.0
EXECUTIVE SUMMARY

The County of Los Angeles is considering adopting a new Rural Outdoor Lighting Ordinance initiated by the Department of Regional Planning. This report evaluates the cost impact on the Department of Public Works (DPW) to upgrade their Dam sites to comply with the proposed ordinance.

There are a total of 14 Dam sites countywide. However only 6 of them are in rural areas and therefore impacted by the new ordinance. The scope of this report is limited to the County Dam sites. Other County rural sites impacted by the ordinance are addressed in separate reports. The list of Dams included in this report is shown in paragraph 2.2.

Many of the existing light fixtures at the Dams are not the full cutoff type required by the Ordinance, and will therefore have to be replaced. Also, current lighting fixture control systems do not comply with the ordinance. Another issue with the majority of the current fixtures is that many of them exceed the mounting height above ground required by the Ordinance which in some cases results in light trespass on the neighboring property. The Ordinance defines light trespass as light falling across a property line onto an adjoining lot or onto an adjoining public right-of-way.

Estimated Rough Order of Magnitude (ROM) Costs:

A.	San Gabriel	\$ 167,465
B.	Cogswell	\$ 126,555
C.	San Dimas	\$ 61,425
D.	Morris	\$ 110,565
E.	Pacoima	\$ 74,120

F.	Big Tujunga	\$ 82,875
	Total	\$ 623,005

SECTION 2.0

SCOPE OF THE ANALYSIS

2.1 The County of Los Angeles is considering adopting a new Ordinance amending Title 22 of the County Code. The Ordinance will establish a Rural Outdoor Lighting District that will establish guidelines governing outdoor lighting. The main objectives include curtailing light pollution, preventing light trespass onto adjoining properties, promoting dark skies, conserving energy, etc., while permitting reasonable uses of outdoor lighting for night time safety, security, productivity, and enjoyment.

2.2 DPW has a total of fourteen (14) Dam sites. Only six (6) of these sites are in rural areas. The following is a list of the rural Dam sites:

<u>Dam</u>	<u>Address</u>	<u>Zoning</u>	<u>Date Inspected</u>
San Gabriel	9700 N San Gabriel Canyon Road, Azusa	W	06/20/2012
Cogswell	San Gabriel Canyon Road, Monrovia	W	06/20/2012
San Dimas	3331 San Dimas Canyon Road, La Verne	W	06/26/2012
Morris	9500 San Gabriel Canyon Road, Azusa	W	06/26/2012
Pacoima	15300 N Pacoima Canyon Road, Pacoima	A2	06/28/2012
Big Tujunga	809 W Big Tujunga Canyon Road, Sunland	W	06/28/2012

2.3 The scope of this report is to:

- A. Review the requirements of the Ordinance and analyze the six dam sites to confirm existing installation and changes required to comply with the Ordinance.
- B. Provide a rough order of magnitude (ROM) cost estimate to implement the required changes.

2.4 The main provisions of the new Ordinance as it affects the dam sites can be summarized as follows:

- A. Outdoor lighting fixtures must be fully shielded type (22.44.540 C). That is a light fixture that emits no light in the area above a horizontal plane passing through the lowest point of the fixture and not more than 10 percent of its light in the area between zero and 10 degrees below such horizontal plane. A full cutoff fixture is a fully shielded fixture of a specific design, usually a box or oval shape with a flat bottom.

- B. Light trespass measured at the property line must not exceed 0.5 foot-candles where the adjoining property is zoned residential, open space, agricultural or public right-of-way.

For other adjoining zoning the limit is 1.0 foot-candles.

- C. The fixture height from ground level to the top of the fixture (22.44.450 D) is limited to:

1. Residential, agricultural, open space and watershed:

20 Feet – except if over 15 feet the fixture lumens are limited to 400. This effectively limits the height to 15 feet, since 400 lumens is an extremely low lighting level (equivalent to a 40-watt incandescent lamp).

- D. Outdoor lighting must be turned off between the hours of 10 p.m. and sunrise. There must be an automatic time switch control to turn the lights off. The timer must be capable of separate schedules for weekdays and weekends. (22.44.550)

Exceptions:

1. Where there are night time operations the lights must be turned off within one hour of close of business.

2. Commercial and industrial uses may reduce the lighting level to 50 percent between 10 p.m. and sunrise instead of turning off all lights. (22.44.550 B.3.b.)
 3. Security and operations lighting for public facilities. (22.44.550 C.4.c.).
- 2.5 Use of outdoor lighting is essential during critical storm operations and when responding to emergencies such as earthquakes. During these events, dam personnel are required to perform valve operations, take dam safety instrument measurements, conduct inspections, and perform other demanding maintenance tasks. The hours of operation will vary and could continue throughout the night. As required in Section 22.44.550, lights used for these operations will be turned off within one hour after close of business.
- 2.6 The dam sites are equipped with large specialized floodlights overlooking the sides of the dam structure that are used infrequently for specialized operations. There is no full cutoff fixture available to project the lighting necessary for these critical dam applications. The floodlights are used during storms and following seismic events to inspect and monitor the dam, reservoir area, and appurtenances for flood control operations and potential dam safety issues. Additionally, the flood lights could be used to monitor areas in the vicinity of the dam during scheduled or emergency water releases to ensure there is no person near the path of the release or to monitor the dam and reservoir for security and safety purposes in the event of an intrusion. Although the draft ordinance does not provide requirements for this specific use at dams, these manually operated fixtures currently comply, or will be modified to comply with the requirements for lighting large outdoor areas as identified in Section 22.44.560. B, Outdoor recreation facility, including the requirement that these lights be turned off within one hour after completion of activities.
- 2.7 Security at the dams is of critical importance due to the high hazard potential of the impounded water. Select lighting fixtures are essential to detect and deter security threats from potential terrorism and vandalism. In accordance with Section 22.44.550

such lighting between 10 pm and sunrise will be reduced by a minimum of 50 percent or motion sensors will be utilized during off hours.

- 2.8 The sites were visited by JCCA engineers, JCCA's lighting consultant Jun Apolinario, DPW Senior Electrical Engineer (John Fallon) and were assisted by site staff. The date of the inspection is noted in paragraph 2.2. Existing conditions were recorded and are shown on the drawings included. Light level readings were taken after dark and the existing fixture types were noted. The cost estimates herein were prepared based on the input from the lighting consultant and from lighting contractors.

SECTION 3.0

SAN GABRIEL

3.1 Site Description

- A. The site Address is:

9700 N. San Gabriel Canyon Road
Azusa, CA 91702

See Section 3.6 for the site plan.

- B. Currently some exterior lights are left on all night for security. None of the existing fixtures are the cutoff type.

3.2 Non-compliance with Proposed Ordinance

The current non-compliance conditions to the new Ordinance at the site are:

- A. None of the existing fixtures are the full cutoff type.
- B. Pole-mounted light fixtures are mounted higher than 15'.
- C. Some lights are left on between 10:00 p.m. and sunrise which should be addressed by motion sensors and/or turning off 50% of fixtures similar to commercial / Industrial facilities.

3.3 Recommended Modifications

- A. Replace two pole-mounted fixtures by entrance gate with full cutoff types. Mounting height shall not exceed 15'.

- B. Remove six wall-mounted fixtures on the existing control and office buildings (buildings 4 and 5) near the upper landing of hydro-electric plant platform stairway and replace with five wall-mounted full cutoff fixtures. Mounting height shall not exceed 15'.
- C. Replace four wall-mounted fixtures on the first two levels of the hydro-electric plant platform with full cut off type. Mounting height shall not exceed 15'.
- D. Remove two pendant-mounted fixtures under canopy and one wall-mounted fixture in the electrical switchgear canopy area and replace with two wall-mounted full cutoff fixtures. Mounting height shall not exceed 15'.
- E. Replace six pole-mounted fixtures along the dam valve control platform with full cutoff types. Mounting height shall not exceed 15'.
- F. Replace one wall-mounted fixture on the building by the spillway with full cut off type. Mounting height shall not exceed 15'.
- G. Remove sixteen wall-mounted fixtures on dam operator house, parking canopy and shed. Replace with ten wall-mounted full cutoff fixtures. Mounting height shall not exceed 15'.
- H. Replace pole-mounted fixtures in dam operator house parking area with pole-mounted full cutoff fixtures. Mounting height shall not exceed 15'.
- I. Replace wall-mounted fixture on blower house (building 13) by roadway leading to the water tank with wall-mounted full cutoff fixture. Mounting height shall not exceed 15'.
- J. Remove two wall-mounted fixtures on waste warehouse (building 5) and replace with one wall-mounted full cutoff fixture. Mounting height shall not exceed 15'.

- K. Replace two wall-mounted fixtures under canopy of pump station by waste warehouse with full cutoff types. Mounting height shall not exceed 15'.
- L. Remove three wall-mounted fixtures on the dam operator house (building 3) and replace with two wall-mounted full cutoff fixtures. Provide additional new pole-mounted light fixtures in parking area. Mounting height shall not exceed 15'.
- M. Provide five automatic time switches, one in each operator house and one each in control house & associated buildings and waste warehouse/pump station.
- N. The automatic time switch will shut off lighting after 10:00 PM or during off hours except limited security lighting.
- O. The automatic time switches will have an override capability to allow the lights to be turned on for off hours (emergency) operations and will automatically turn off again after one hour.
- P. Floodlighting fixtures used for surveying the dam and supporting structures for damage during emergencies are to remain in place and be manually turned on by dam operator to satisfy operational needs which have a critical impact on public safety and will accordingly be operated as described in 2.6. See site plan for locations.
- Q. Some select light fixtures are to be left on during night hours for security and operational needs and will accordingly be operated as described in 2.7
- R. Provide motion sensor controls where practical.

3.4 Estimated ROM Cost

Replace two pole-mounted fixtures
By the entrance gate

2 @ \$2,500 = \$ 5,000

Remove twelve wall-mounted fixtures on control and office (buildings 4 & 5) and replace with five full cutoff type	5 @ \$1,500 = \$ 7,500
Replace four wall-mounted fixtures on first two levels of hydro-electric plant with full cutoff	4 @ \$1,800 = \$ 7,200
Remove three light fixtures from the switchgear canopy area and replace with two full cutoff	2 @ \$1,800 = \$ 3,600
Replace six pole-mounted fixtures along dam valve control platform with full cutoff	6 @ \$1,500 = \$ 7,500
Replace one wall-mounted fixture on building by spillway with full cutoff	1 @ \$1,500 = \$ 1,500
Remove sixteen wall-mounted fixtures on dam operator house, parking canopy and shed and replace with ten wall-mounted full cutoff	10 @ \$1,500 = \$ 15,000
Replace pole-mounted fixture in dam operator House parking area with full cutoff	1 @ \$1,800 = \$ 1,800
Replace wall-mounted fixture on blower house(building 13) with full cutoff	4 @ \$1,800 = \$ 7,200
Remove two wall-mounted fixtures on waste warehouse (building 5) and replace with one wall-mounted full cutoff	1 @ \$1,500 = \$ 1,500
Replace two under canopy pump station	

lights with full cutoff fixtures 2 @ \$1,700 = \$ 3,400

Remove two wall-mounted fixtures on
waste warehouse (building 5) and replace
with one wall-mounted full cutoff 1 @ \$1,500 = \$ 1,500

Remove three wall-mounted fixtures on
dam operator house (building 3) and replace
with one wall-mounted full cutoff 1 @ \$1,500 = \$ 1,500

Provide new pole-mounted light fixture in the
dam operator house (building 3) parking area 1 @ \$3,500 = \$ 3,500

Automatic Timer Switch 5 @ \$1,500 = \$ 7,500

Miscellaneous \$ 16,500

Subtotal \$91,700

Design Contingency (25%) \$14,175

**Subtotal
\$114,625**

Contractor Overhead and Profit (20%) \$14,175

Subtotal \$128,825

Soft Costs

Project Management, Design, Permits, Inspection (30% of total) \$38,640

Total

\$167,465

3.5 Photographs

The following photographs were taken during the dates of site visit stated in Section 2.2.



PH-1 Control House Near Hydro-electric Plant Platform



PH-2 Overall View of Hydro-electric Plan Platform



PH-3 Typical Pole-mounted Flood Light Fixture



PH-4 Typical Floodlight Used During Emergency For Surveying Integrity of Dam



PH-5 Warehouse Building Lightign At Night Time



PH-6 Night Time View of Dam Area Served By Floodlights



PH-7 Night Time View of Valve Control Platform



PH-8 Overall View of Hydro-electric Plant Platform From Lower Level

3.6 Site Plan

The following Site Plan is based on the best available information as well as observations during site visit

EXISTING CONDITION KEYNOTES:

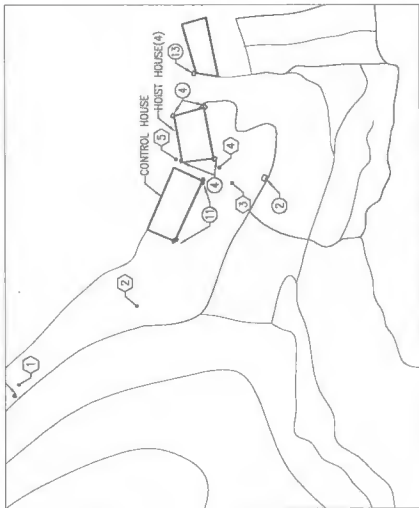
- 1 250W POLE MOUNTED FLOOD LIGHTS MOUNTED AT 25'±
CONTROLLED BY SWITCH.
- 2 1000W METAL HALIDE FLOOD LIGHTS MOUNTED AT 2'±
CONTROLLED BY SWITCH
- 3 150W WALL MOUNTED INCANDESCENT LIGHTS MOUNTED AT
8'± CONTROLLED BY SWITCH
- 4 250W WALL MOUNTED METAL HALIDE FLOOD LIGHTS
MOUNTED AT 8'± CONTROLLED BY SWITCH
- 5 (2) 1000W METAL HALIDE FLOOD LIGHTS MOUNTED AT
15'± CONTROLLED BY SWITCH
- 6 (2) 250W POLE MOUNTED FLOOD LIGHTS MOUNTED AT
25'± CONTROLLED BY SWITCH
- 7 (2) 250W POLE MOUNTED FLOOD LIGHTS AND (1) 150W
SPOT LIGHT MOUNTED AT 12'± CONTROLLED BY SWITCH
- 8 (2) 150W WALL MOUNTED INCANDESCENT LIGHTS
MOUNTED AT 8'± CONTROLLED BY SWITCH
- 9 (2) 150W POLE MOUNTED INCANDESCENT LIGHTS
MOUNTED AT 8'± CONTROLLED BY SWITCH.
- 10 150W POLE MOUNTED INCANDESCENT LIGHTS MOUNTED AT
8'± CONTROLLED BY SWITCH
- 11 (2) 250W POLE MOUNTED FLOOD LIGHTS MOUNTED AT
12'± CONTROLLED BY SWITCH.
- 12 (2) 1000W METAL HALIDE FLOOD LIGHTS MOUNTED AT
15'± CONTROLLED BY SWITCH
- 13 250W POLE MOUNTED FLOOD LIGHTS MOUNTED AT 8'±
CONTROLLED BY SWITCH
- 14 (2) 150W WALL MOUNTED INCANDESCENT LIGHTS
MOUNTED AT 8'± CONTROLLED BY MOTION SENSOR
- 15 1500W METAL HALIDE FLOOD LIGHTS MOUNTED AT 2'±
CONTROLLED BY SWITCH

NOTE:

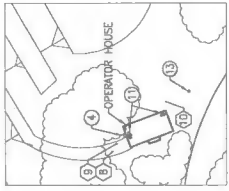
WATGAGE AND FIXTURE TYPE ARE BASED ON VISUAL
OBSERVATION AND ARE ESTIMATED ONLY.

LIGHT METER READINGS:

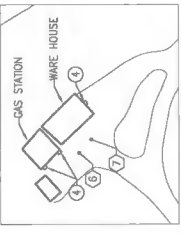
- 1 2.6 FOOT CANDLES
- 2 2.1 FOOT CANDLES
- 3 1.2 FOOT CANDLES
- 4 11.1 FOOT CANDLES
- 5 11.8 FOOT CANDLES
- 6 3.2 FOOT CANDLES
- 7 2.0 FOOT CANDLES
- 8 1.0 FOOT CANDLES
- 9 4.3 FOOT CANDLES
- 10 0.2 FOOT CANDLES
- 11 11.5 FOOT CANDLES
- 12 1.5 FOOT CANDLES
- 13 0.1 FOOT CANDLES
- 14 0.9 FOOT CANDLES
- 15 0.9 FOOT CANDLES
- 16 0.5 FOOT CANDLES
- 17 8.9 FOOT CANDLES
- 18 2.6 FOOT CANDLES
- 19 8.9 FOOT CANDLES
- 20 0.4 FOOT CANDLES



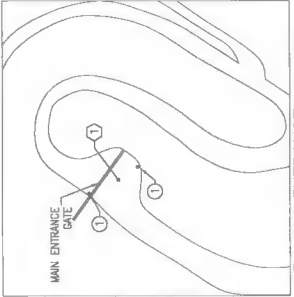
B CONTROL HOUSE
SCALE: 1/8" = 1'-0"
N



C DAM OPERATOR HOUSE
SCALE: 1/8" = 1'-0"
N



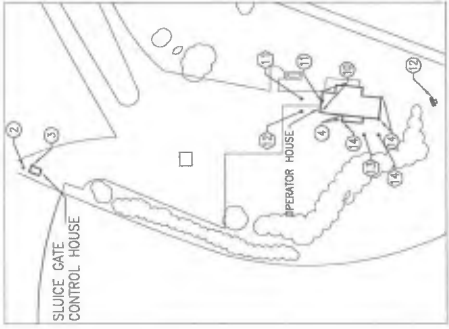
D WAREHOUSE
SCALE: 1/8" = 1'-0"
N



E MAIN ENTRANCE GATE
SCALE: 1/8" = 1'-0"
N



A CREST OF DAM AND WATER TANK
SCALE: 1/8" = 1'-0"
N



F SLUICE GATE CONTROL HOUSE
SCALE: 1/8" = 1'-0"
N



G DAM OPERATOR HOUSE
SCALE: 1/8" = 1'-0"
N

1

L.A. COUNTY DEPT. OF PUBLIC WORKS - RD 558
SAN GABRIEL DAM

SAN GABRIEL DAM

WRD DAMS
COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS

MRD DAMS

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS



APPROVALS	NO.	DATE	COMMENTS
DIRECTOR OF PUBLIC WORKS			
PROJECT MANAGER (DESIGN)			
COMMISSIONER OF REVENUE			

J.C. CHANG & ASSOCIATES, INC.
ENGINEERS ARCHITECTS PLANNERS
365 VAN NESS AVE. SUITE 208
TORRANCE, CA 90501
FAX (310) 212 - 7644
(310) 212 - 5272
JCCA #12671-2

EXISTING CONDITION KEYNOTES:

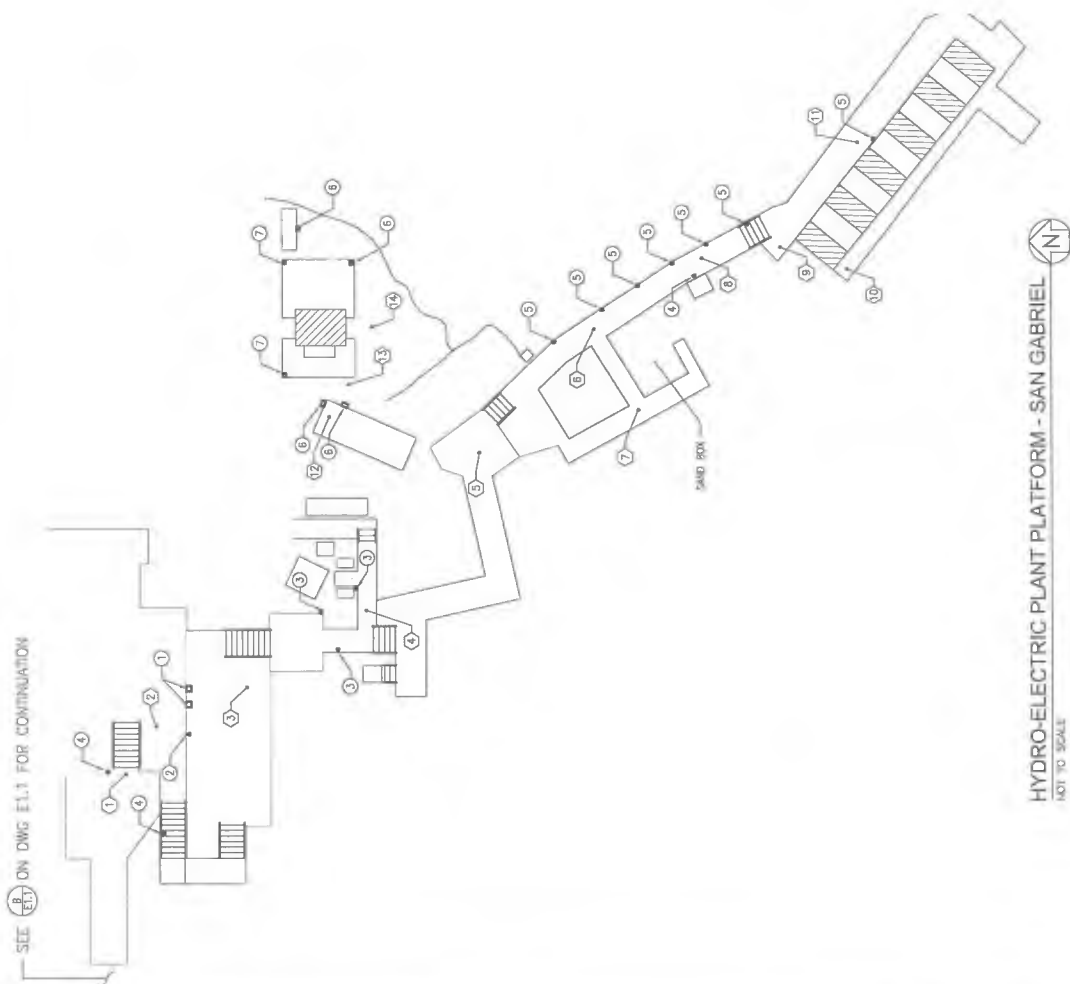
1. 100W METAL HALIDE FLOOD LIGHTS OPERATED BY LOCAL SWITCH AND REMOTE CONTROL PULSE
2. 250W WALL MOUNTED HIGH PRESSURE SODIUM FLOODLIGHT MOUNTED AT 15' & CONTROLLED BY SWITCH
3. 150W WALL MOUNTED HIGH PRESSURE SODIUM LIGHT ON THE LOWEST LEVEL OF PLANTATION CONTROLLED BY SWITCH
4. 100W WALL MOUNTED HIGH PRESSURE SODIUM LIGHT CONTROLLED BY SWITCH
5. 150W POLE MOUNTED HIGH PRESSURE SODIUM FLOODLIGHT MOUNTED AT 10' & CONTROLLED BY LOCAL SWITCH
6. 250W WALL MOUNTED METAL HALIDE FLOODLIGHTS MOUNTED AT 8' & CONTROLLED BY SWITCH
7. 15W INCANDESCENT LIGHTS MOUNTED AT 8' & CONTROLLED BY SWITCH

NOTE:

WATTAZE AND FUTURE TYPE ARE BASED ON VISUAL OBSERVATION AND ARE ESTIMATED ONLY.

LIGHT METER READINGS:

- 1 4.8 FOOT CANDLES
- 2 0.5 FOOT CANDLES
- 3 4.3 FOOT CANDLES
- 4 5.8 FOOT CANDLES
- 5 3.9 FOOT CANDLES
- 6 5.6 FOOT CANDLES
- 7 5.2 FOOT CANDLES
- 8 1.2 FOOT CANDLES
- 9 1.6 FOOT CANDLES
- 10 2.7 FOOT CANDLES
- 11 1.8 FOOT CANDLES
- 12 10.1 FOOT CANDLES
- 13 5.8 FOOT CANDLES
- 14 1.7 FOOT CANDLES



HYDRO-ELECTRIC PLANT PLATFORM - SAN GABRIEL

SECTION 4.0

COGSWELL

4.1 Site Description

- A. The site Address is:

Forest Route 2N95, San Gabriel Canyon Road
Angeles National Forest, CA 91702

See Section 4.6 for site plan.

- B. Currently most exterior lights are left on all night for security. None of the existing fixtures are the cutoff type.

4.2 Non-compliance with Proposed Ordinance

The current non-compliance conditions to the new Ordinance at the site are:

- A. None of the existing fixtures are the full cutoff type.
- B. Pole-mounted light fixtures are mounted higher than 15'.
- C. Some lights are left on between 10:00 p.m. and sunrise which should be addressed by motion sensors and/or turning off 50% of fixtures similar to commercial / Industrial facilities.

4.3 Recommended Modifications

- A. Remove fourteen wall-mounted fixtures on the existing control, recorder and generator house buildings and replace with six wall-mounted full cutoff fixtures. Mounting height shall not exceed 15'.

- B. Replace pole-mounted light fixture for stairway landing near control and recorder building with full cutoff fixture. Mounting height shall not exceed 15'.
- C. Replace wall-mounted fixture on shelter house with full cutoff fixture. Mounting height shall not exceed 15'.
- D. Replace pole-mounted fixtures at stairway leading to shelter house with full cutoff fixtures. Mounting height shall not exceed 15'.
- E. Replace wall-mounted fixture on garage with full cutoff fixture. Mounting height shall not exceed 15'.
- F. Replace pole-mounted fixtures next to garage with cutoff fixtures. Mounting height shall not exceed 15'.
- G. Replace two wall-mounted fixtures on garage & generator building with full cutoff fixture. Mounting height shall not exceed 15'.
- H. Remove two roof-mounted floodlights at dam operator house and replace with two wall-mounted full cutoff fixtures. Mounting height shall not exceed 15'.
- I. Replace two wall-mounted fixtures on dam operator house with full cutoff fixtures. Mounting height shall not exceed 15'.
- J. Replace four wall-mounted fixtures on upper garage/storage building with full cutoff fixtures. Mounting height shall not exceed 15'.
- K. Remove three pole-mounted lights at open area near upper garage/storage building. Replace with one pole-mounted light for the open area and one pole-mounted light near the stairway landing at the end of the open area. Mounting height shall not exceed 15'.

- L. Replace pole-mounted fixture near remote gage station and tram line with pole-mounted full cutoff fixture. Mounting height shall not exceed 15'.
- M. Replace wall-mounted fixtures on pump house near outlet tunnel portal with wall-mounted full cutoff fixtures. Mounting height shall not exceed 15'.
- N. Provide five automatic time switches, one each in the lower garage, upper garage, garage and generator building, dam operator building and garage and control house and associated buildings.
- O. The automatic time switch will shut off lighting after 10:00 PM or during off hours except limited security lighting.
- P. The automatic time switches will have an override capability to allow the lights to be turned on for off hours (emergency) operations and will automatically turn off again after one hour.
- Q. Floodlighting fixtures used for surveying the dam and supporting structures for damage during emergencies are to remain in place and be manually turned on by dam operator to satisfy operational needs which have a critical impact on public safety and will accordingly be operated as described in 2.6. See site plan for locations.
- R. Some select light fixtures are to be left on during night hours for security and operational needs and will accordingly be operated as described in 2.7
- S. Lighting used for the helipad area did not seem to be compliant with applicable regulations and will likely require replacement.
- T. Provide motion sensor controls where practical.

4.4 Estimated ROM Cost

Remove fourteen wall-mounted fixtures on control, recorder and generator buildings and replace with six full cutoff type	6 @ \$1,500 = \$ 9,000
Replace one pole-mounted fixtures by stairway landing with full cutoff	1 @ \$2,500 = \$ 2,500
Replace wall-mounted fixture on shelter house with full cutoff	1 @ \$1,500 = \$ 1,500
Replace one pole-mounted fixture at stairs leading to shelter house with full cutoff	1 @ \$2,500 = \$ 2,500
Replace wall-mounted fixture on garage building with full cutoff	1 @ \$1,500 = \$ 1,500
Replace one pole-mounted fixtures near garage building with full cutoff	1 @ \$2,500 = \$ 2,500
Replace wall-mounted fixture on garage & generator building with full cutoff	1 @ \$1,500 = \$ 1,500
Remove two fixtures mounted on roof on dam operator house with two wall-mounted full cutoff fixtures	2 @ \$1,700 = \$ 3,400
Replace two wall-mounted fixture on dam operator house with full cutoff	2 @ \$1,500 = \$ 3,000
Replace four wall-mounted fixture on upper garage/storage with full cutoff	4 @ \$1,500 = \$ 6,000

Remove three pole-mounted fixtures in open area by upper garage/storage with two pole-mounted full cut-off fixtures	2 @ \$2,500 = \$ 5,000
Replace pole-mounted fixtures near remote gage station with full cutoff type	1 @ \$2,500 = \$ 2,500
Replace two wall-mounted fixture on pump house building with full cutoff type	2 @ \$1,500 = \$ 3,000
Automatic Timer Switch	5 @ \$1,500 = \$ 7,500
Miscellaneous	<u>\$ 13,500</u>
Subtotal	\$64,900
Design Contingency (25%)	<u>\$16,225</u>
Subtotal	\$81,125
Contractor Overhead and Profit (20%)	<u>\$16,225</u>
Subtotal	\$97,350
Soft Costs	
Project Management, Design, Permits, Inspection (30% of total)	<u>\$29,205</u>
Total	\$126,555

4.5 Photographs

The following photographs were taken during the dates of site visit stated in Section 2.2.



PH-1 Dam Control House And Supporting Structures



PH-2 Pole Mounted Flood Light At Remote Gage House



PH-3 Night Time Overall View of Dam



PH-4 Night Time View of Dam Spillway



PH-5 Floodlights Overlooking The Dam Mounted On Platform



PH-6 Typical Pole Mounted Flood Light

4.6 Site Plan

The following Site Plan is based on the best available information as well as observations during site visit.

SITE ADDRESS: FOREST ROUTE 2N95, SAN GABRIEL CANYON ROAD,
MONROVIA, CA 91702
DAM OPERATOR: XXX - XXX
XXXX - XXXX (CELL)

KUDAL OUTDOOR LIGHTING ORDINANCE
WRD DAMS
COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS

COUNTY DEPT. OF PUBLIC WORKS - RD 559
COGSWELL
L OUTDOOR LIGHTING ORDIN
WRD DAMS
COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS

SHEET TITLE

PROJECT TITLE

DESIGNED BY:	F.R.
DESIGNED BY:	S.R.
CHECKED BY:	S.R.
SCALE:	AS NOTED

DATE 18-08-12
SHEET
E2.0



APPROVALS

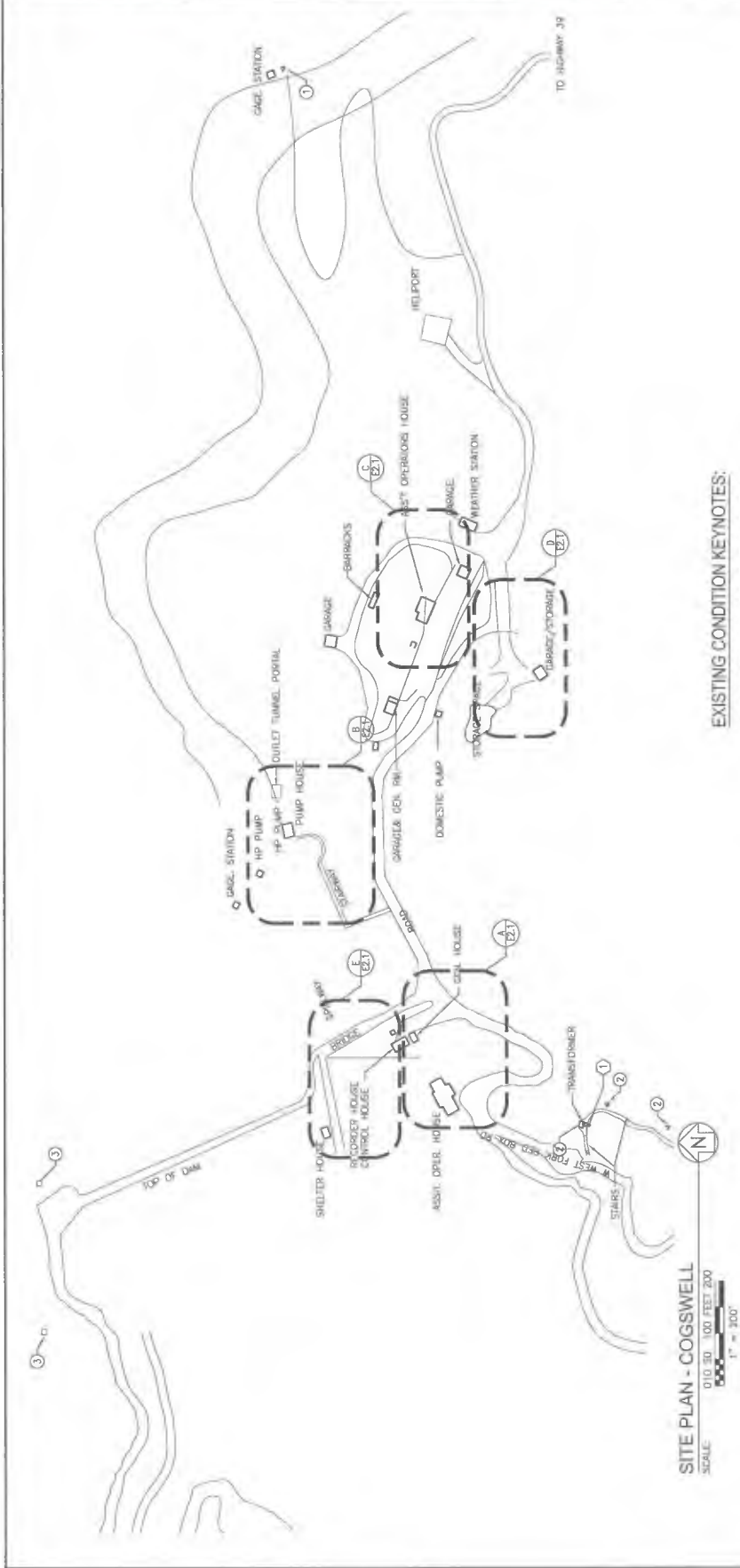
DIRECTOR OF PUBLIC WORKS

PROJECT MANAGER/ENGINEER

CONTRACTOR OF RECORD

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J.C. CHANG & ASSOCIATES, INC.
ENGINEERS ARCHITECTS PLANNERS
385 VAN NESS AVE., SUITE 208
TORRANCE, CA 90501 FAX (310) 212 - 7644 (310) 212 - 5272
JCCA #12671-2



EXISTING CONDITION KEYNOTES:

- ① 250W POLE MOUNTED FLOOD LIGHTS MOUNTED AT 20'± CONTROLLED BY PHOTOSENSOR.
- ② 150W POLE MOUNTED SPOT LIGHTS MOUNTED AT 8'± LOCALLY CONTROLLED BY SWITCH.
- ③ 1000W METAL HALIDE FLOOD LIGHTS MOUNTED AT 5'± CONTROLLED BY DIMMER TAPER DIMMER.

NOTE:

VOLTAGE AND FAILURE TYPE ARE BASED ON VISUAL OBSERVATION AND ARE ESTIMATED ONLY.

LIGHT METER READINGS:

- 7.1 FOOT CANDLES

SECTION 5.0

SAN DIMAS

5.1 Site Description

- A. The site Address is:

3331 San Dimas Canyon Road
La Verne, CA 93543

See Section 5.6 for the site plan.

- B. Currently most exterior lights are left on all night for security. None of the existing fixtures are the cutoff type.

5.2 Non-compliance with Proposed Ordinance

The current non-compliance conditions to the new Ordinance at the site are:

- A. None of the existing fixtures are the full cutoff type.
- B. Some lights are left on between 10:00 p.m. and sunrise which should be addressed by motion sensors and/or turning off 50% of fixtures similar to commercial / Industrial facilities.

5.3 Recommended Modifications

- A. Remove all wall-mounted fixtures on the garage buildings and shed in the lower entrance area and replace with one wall-mounted full cutoff fixture for each building. The garage buildings previously served two houses on the lot which have been demolished. The garages and the shed are not used for essential

storage and there is minimal need for access at night time, therefore one light per building will be sufficient. Mounting height shall not exceed 15'.

- B. Replace two pole-mounted fixtures, one between the garage buildings and one by the stairs leading to the stream gages, with full cutoff fixtures. Mounting height shall not exceed 15'.
- C. Replace pole-mounted fixture at the entry gate with full cut off type and reorient to face the gateway to minimize light at the property line. Mounting height shall not exceed 15'.
- D. Remove existing uplight at the flag pole by the road near the control house.
- E. Replace wall-mounted fixtures on the control house building with full cutoff fixtures. Mounting height shall not exceed 15'.
- F. Replace one wall-mounted fixture on the shelter house and one wall-mounted fixture on former generator house with wall-mounted full cutoff fixtures.
- G. Provide two automatic time switches, one in the garage at the lower entry and one in the control house.
- H. The automatic time switch will shut off lighting after 10:00 PM or during off hours except limited security lighting.
- I. The automatic time switches will have an override capability to allow the lights to be turned on for off hours (emergency) operations and will automatically turn off again after one hour.
- J. Floodlighting fixtures used for surveying the dam and supporting structures for damage during emergencies are to remain in place and be manually turned on by dam operator to satisfy operational needs which have a critical impact on

public safety and will accordingly be operated as described in 2.6. See site plan for locations.

K. Some select light fixtures are to be left on during night hours for security and operational needs and will accordingly be operated as described in 2.7

L. Provide motion sensor controls where practical.

5.4 Estimated ROM Cost

Remove ten lights from two garages and Shed by lower entry and replace with three	3 @ \$1,500 = \$4,500
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Replace pole-mounted fixtures by garages gages and lower site entry	3 @ \$2,500 = \$7,500
--	-----------------------

Replace four wall-mounted lights on control house building	4 @ \$1,500 = \$6,000
---	-----------------------

Automatic Timer Switches	2 @\$1,500 = \$ 3,000
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Miscellaneous	<u>\$ 10,500</u>
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Subtotal	\$31,500
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Design Contingency (25%)	<u>\$7,875</u>
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Subtotal	\$39,375
-----------------	-----------------

Contractor Overhead and Profit (20%)	<u>\$7,875</u>
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Subtotal	\$47,250
-----------------	-----------------

Soft Costs

Project Management, Design, Permits, Inspection (30% of total) \$14,175

Total **\$61,425**

5.5 Photographs

The following photographs were taken during the dates of site visit stated in Section 2.2.



PH-1 Typical Building Mounted Light



PH-2 Overall View of Dam Structure



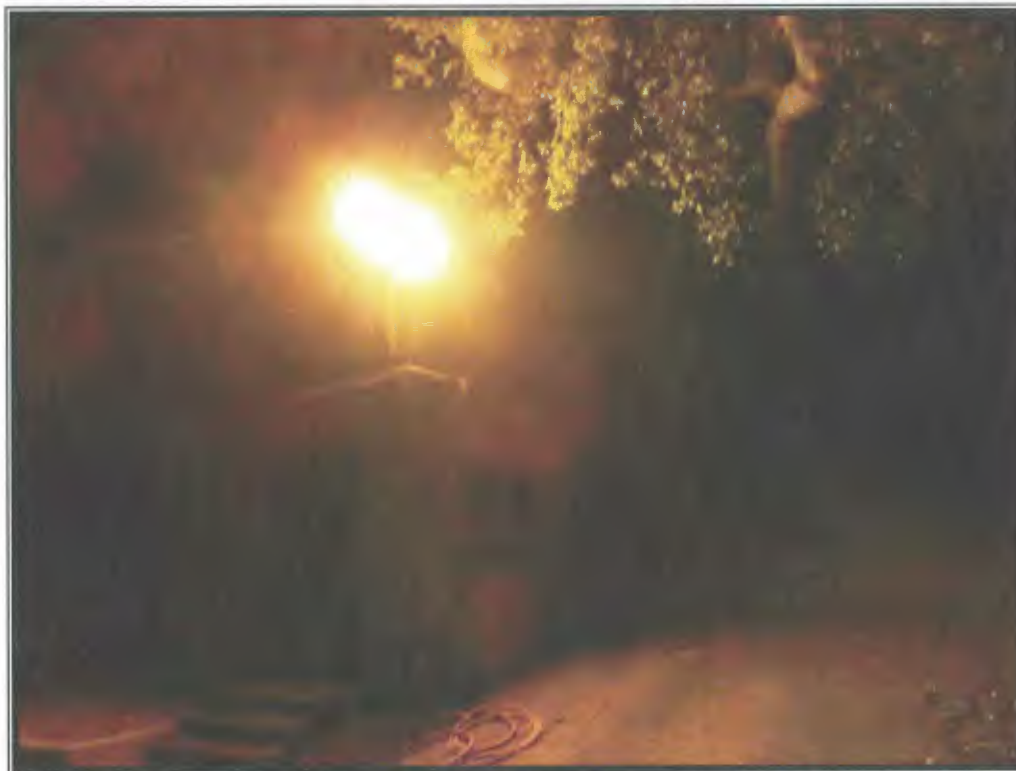
PH-3 Typical Floodlight Used To Illuminate Dam Structure During Emergencies



PH-4 Night Time View Of Dam Platforms



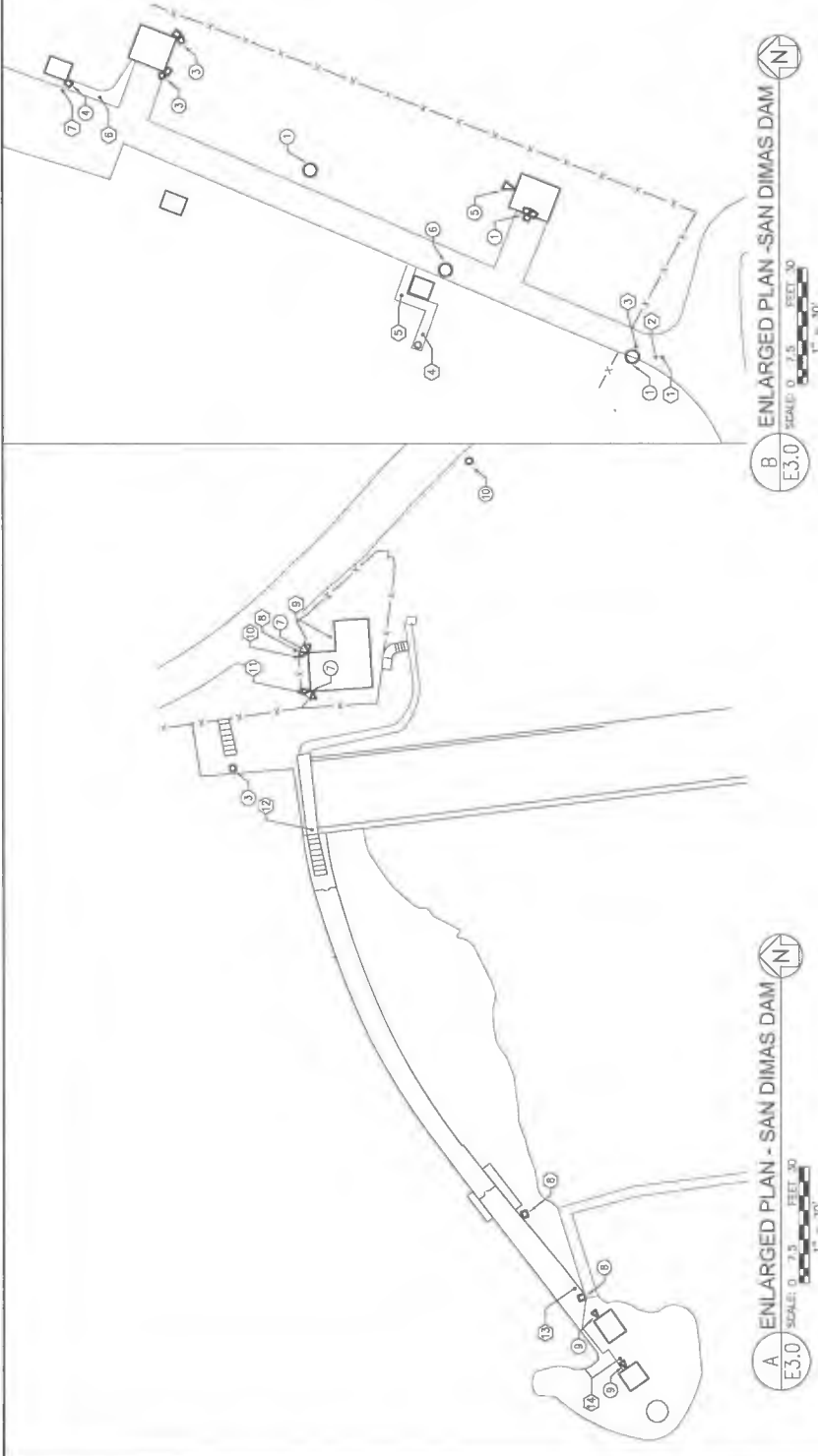
PH-5 View From Behind Typical Floodlight Used To Illuminate Dam Structure



PH-6 Typical Pole Mounted Light

5.6 Site Plan

The following Site Plan is based on the best available information as well as observations during site visit.



EXISTING CONDITION KEYNOTES:

- ① 250W POLE MOUNTED HIGH PRESSURE SODIUM LIGHT MOUNTED AT 13'-3" CONTROLLED BY PHOTOCELL
- ② 150W WALL-MOUNTED REARVIEW MIRROR TUBE FLOODLIGHTS AT 13'-3" CONTROLLED BY MOTION SENSOR
- ③ 150W WALL-MOUNTED REARVIEW MIRROR DOUBLE FLOODLIGHTS AT 11'-6" CONTROLLED BY MOTION SENSOR
- ④ 150W WALL-MOUNTED REARVIEW MIRROR DOUBLE FLOODLIGHTS AT 14'-2" CONTROLLED BY MOTION SENSOR
- ⑤ 150W WALL-MOUNTED REARVIEW MIRROR AT 8' CONTROLLED BY LIGHT SWITCH
- ⑥ 250W POLE MOUNTED HIGH PRESSURE SODIUM LIGHT USED TO MONITOR VASE LEVELS MOUNTED AT 13'-3" CONTROLLED BY PHOTOCELL

LIGHT METER READINGS:

- 1 0.1 FOOT CANDLES
- 2 1.2 FOOT CANDLES
- 3 7.2 FOOT CANDLES
- 4 0.2 FOOT CANDLES
- 5 3.4 FOOT CANDLES
- 6 31 FOOT CANDLES
- 7 42 FOOT CANDLES
- 8 0.2 FOOT CANDLES
- 9 4.2 FOOT CANDLES
- 10 1 FOOT CANDLES
- 11 7.8 FOOT CANDLES
- 12 2.6 FOOT CANDLES
- 13 9.4 FOOT CANDLES
- 14 10 FOOT CANDLES

NOTE:

RENTAGE AND FUTURE TYPE ARE BASED ON VISUAL OBSERVATION AND ARE ESTIMATED ONLY.

SECTION 6.0

MORRIS

6.1 Site Description

- A. The site Address is:

9500 San Gabriel Canyon Road
Azusa, CA 91702

See Section 6.6 for the site plan.

- B. Currently some exterior lights are left on all night for security. None of the existing fixtures are the cutoff type.
- C. Morris dam is currently under construction. While some new lighting is part of the improvements, not fixtures have been installed yet. This study assumes that the new lighting will be provided in a manner that is compliant with the requirements of the rural outdoor lighting ordinance.

6.2 Non-compliance with Proposed Ordinance

The current non-compliance conditions to the new Ordinance at the site are:

- A. None of the existing fixtures are the full cutoff type.
- B. Wall-mounted fixtures near the generator room are mounted higher than 15'.
- C. The lighting level at the west property line near the main road at the entry gate exceeds 0.5 foot candles.

- D. Some lights are left on between 10:00 p.m. and sunrise Some lights are left on between 10:00 p.m. and sunrise which should be addressed by motion sensors and/or turning off 50% of fixtures similar to commercial / Industrial facilities.

6.3 Recommended Modifications

- A. Remove fifteen decorative pole-mounted fixtures along the dam crest and replace with five full cutoff type fixtures and new poles with 3' arms for fixture mounting which are functionally adequate for the illumination required.. Mounting height shall not exceed 15'.
- B. Remove four fixtures mounted on wall-mounted concrete arm on each of four pillar buildings and replace with one full cutoff fixture on the arm facing the roadway for each of the four buildings.
- C. Replace five wall-mounted on equipment building with full cutoff fixtures. Mounting height shall not exceed 15'.
- D. Remove the uplights for the flag pole by the control house.
- E. Remove six wall-mounted fixtures on the control house building and replace with four wall-mounted full cutoff fixtures. Mounting height shall not exceed 15'.
- F. Remove five wall-mounted fixtures on the cottage house and replace with four wall-mounted full cutoff fixtures. Mounting height shall not exceed 15'.
- G. At higher entry gate, remove the pole-mounted fixture on the street side of the fence. Replace the other pole-mounted fixture which is inside of the fence with full cutoff type. Mounting height shall not exceed 15'.
- H. At lower entry gate, relocate the existing pole inside the fence and replace the fixture with full cutoff type. Mounting height shall not exceed 15'.

- I. The automatic time switch will shut off lighting after 10:00 PM or during off hours except limited security lighting.
- J. The automatic time switches will have an override capability to allow the lights to be turned on for off hours (emergency) operations and will automatically turn off again after one hour.
- K. Floodlighting fixtures used for surveying the dam and supporting structures for damage during emergencies are to remain in place and be manually turned on by dam operator to satisfy operational needs which have a critical impact on public safety and will accordingly be operated as described in 2.6. See site plan for locations.
- L. Some select light fixtures are to be left on during night hours for security and operational needs and will accordingly be operated as described in 2.7.
- M. Provide motion sensor controls where practical.

6.4 Estimated ROM Cost

Remove fifteen pole-mounted fixtures
and provide five pole-mounted fixtures 5 @ \$3,500 = \$17,500

Replace four arm-mounted fixtures on each
pillar building with full cutoff type 4 @ \$1,800 = \$ 7,200

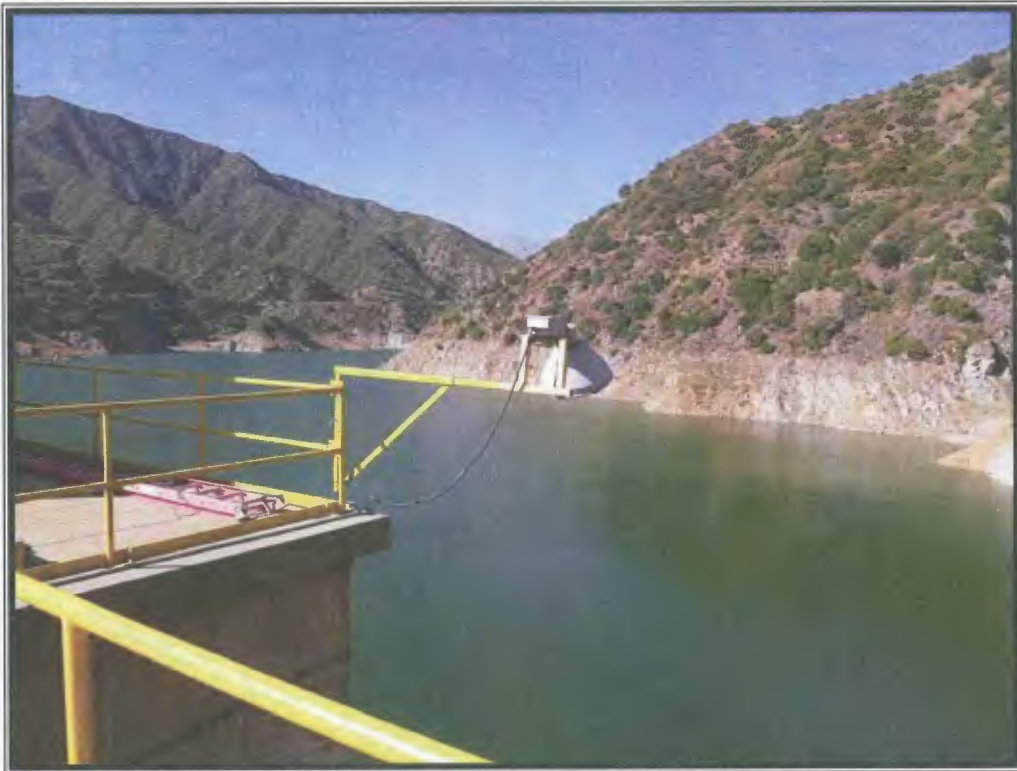
Replace sixteen wall-mounted fixtures on
equipment, control and cottage buildings
And replace with twelve full cutoff type 12 @ \$1,500 = \$ 5,000

Replace two pole-mounted fixtures at each

entry gate with full cutoff fixtures	2 @ \$2,500 = \$ 5,000
Remove one pole-mounted fixture at entry gate and two flag pole uplights	4 @ \$1,500 = \$ 6,000
Automatic Timer Switch	3 @ \$1,500 = \$ 4,500
Miscellaneous	<u>\$ 11,500</u>
Subtotal	\$56,700
Design Contingency (25%)	<u>\$14,175</u>
Subtotal	\$70,875
Contractor Overhead and Profit (20%)	<u>\$14,175</u>
Subtotal	\$85,050
Soft Costs	
Project Management, Design, Permits, Inspection (30% of total)	<u>\$25,515</u>
Total	\$110,565

6.5 Photographs

The following photographs were taken during the dates of site visit stated in Section 2.2.



PH-1 Typical Floodlight Used To Illuminate Dam Structure During Emergencies



PH-2 Typical Pole Mounted Fixture Along Dam Crest Road



PH-3 Building Mounted Floodlights At Night



PH-4 Floodlights Mounted Higher Than 15 Feet



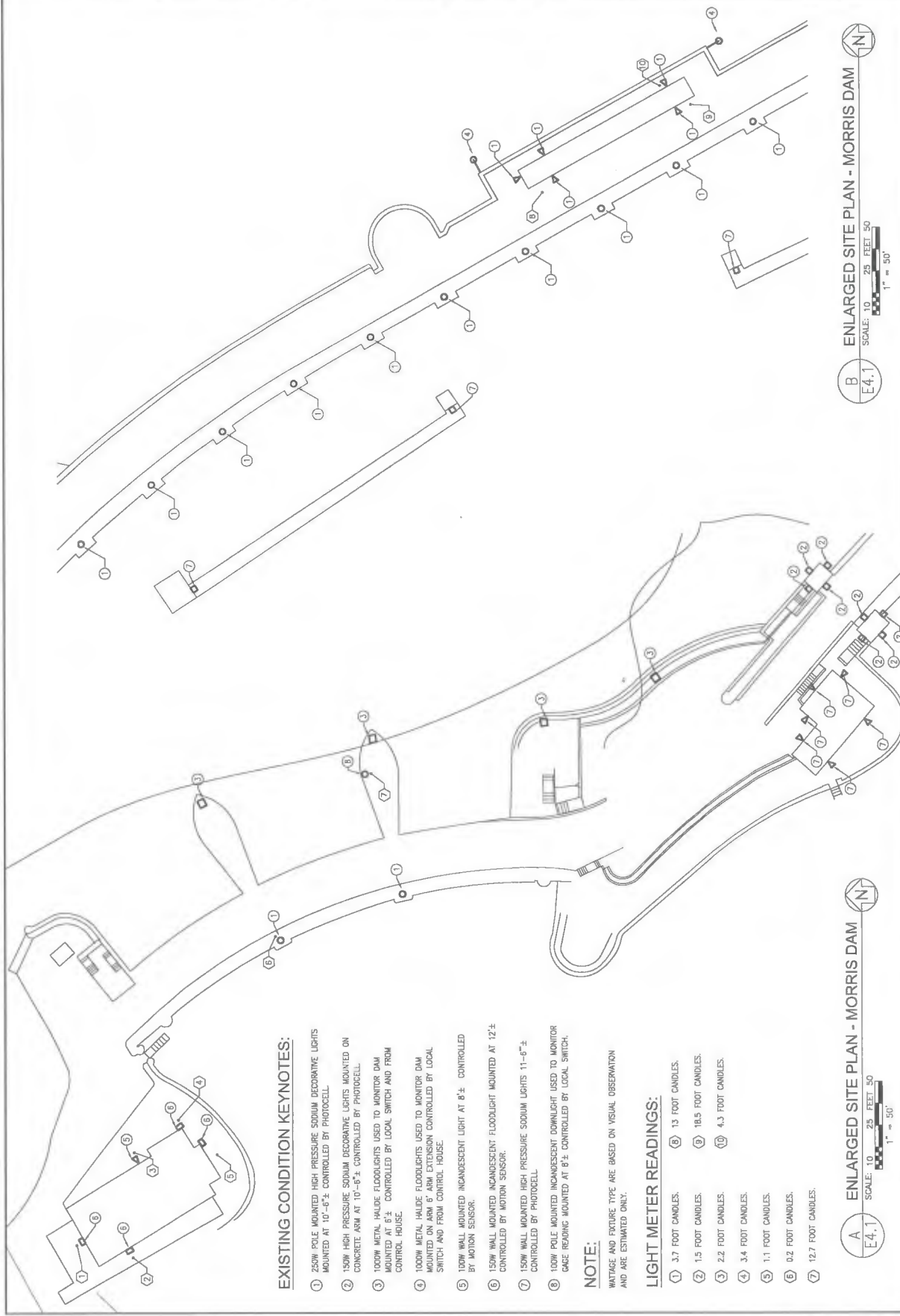
PH-5 Dam Crest Road and Equipment Structure At Night Time



PH-6 Typical Floodlight Used For Dam Area At Night Time

6.6 Site Plan

The following Site Plan is based on the best available information as well as observations during site visit.



EXISTING CONDITION KEYNOTES:

- 250W POLE MOUNTED HIGH PRESSURE SODIUM DECORATIVE LIGHTS MOUNTED AT 10'-0"±. CONTROLLED BY PHOTOCELL.
- 150W HIGH PRESSURE SODIUM DECORATIVE LIGHTS MOUNTED ON CONCRETE ARM AT 10'-6"±. CONTROLLED BY PHOTOCELL.
- 1000W METAL HALIDE FLOODLIGHTS USED TO MONITOR DAM MOUNTED AT 10'-0"±. CONTROLLED BY LOCAL SWITCH AND FROM CONTROL HOUSE.
- 1000W METAL HALIDE FLOODLIGHTS USED TO MONITOR DAM MOUNTED ON ARM 6' ARM EXTENSION CONTROLLED BY LOCAL SWITCH AND FROM CONTROL HOUSE.
- 100W WALL MOUNTED INCANDESCENT LIGHT AT 8'±. CONTROLLED BY MOTION SENSOR.
- 150W WALL MOUNTED INCANDESCENT FLOODLIGHT MOUNTED AT 12'±. CONTROLLED BY MOTION SENSOR.
- 150W WALL MOUNTED HIGH PRESSURE SODIUM LIGHTS 11'-0"±. CONTROLLED BY PHOTOCELL.
- 100W POLE MOUNTED INCANDESCENT DOWNLIGHT USED TO MONITOR GAGE READING MOUNTED AT 8'±. CONTROLLED BY LOCAL SWITCH.

NOTE:

WATTAGE AND FIXTURE TYPE ARE BASED ON VISUAL OBSERVATION AND ARE ESTIMATED ONLY.

LIGHT METER READINGS:

- 1 3.7 FOOT CANDLES.
- 2 1.5 FOOT CANDLES.
- 3 2.2 FOOT CANDLES.
- 4 3.4 FOOT CANDLES.
- 5 1.1 FOOT CANDLES.
- 6 0.2 FOOT CANDLES.
- 7 12.7 FOOT CANDLES.
- 8 13 FOOT CANDLES.
- 9 18.5 FOOT CANDLES.
- 10 4.3 FOOT CANDLES.

SECTION 7.0

PACOIMA

7.1 Site Description

- A. The site Address is:

15300 N Pacoima Canyon Road
Sylmar, CA 91342

See Section 7.6 for site plan.

- B. Currently some exterior lights are left on all night for security. None of the existing fixtures are the cutoff type.

7.2 Non-compliance with Proposed Ordinance

The current non-compliance conditions to the new Ordinance at the site are:

- A. None of the existing fixtures are the full cutoff type.
- B. The lights on the poles at entry gate and canopy near entry gate are mounted higher than 15'.
- C. Some lights are left on between 10:00 p.m. and sunrise which should be addressed by motion sensors and/or turning off 50% of fixtures similar to commercial / Industrial facilities.

7.3 Recommended Modifications

- A. Remove two pole-mounted lighting fixtures near generator building and replace with one wall-mounted full cutoff fixtures on building. Mounting height shall not exceed 15'.
- B. Remove two pole-mounted lighting fixtures on the pathway towards trash chute and replace with one pole-mounted full cutoff fixture. Mounting height shall not exceed 15'.
- C. Replace two wall-mounted fixtures from lower level of control house and one wall-mounted fixture on upper level stairway landing of control house with wall-mounted full cutoff fixtures. Mounting height shall not exceed 15'.
- D. Remove four of seven fence-mounted floodlights near control house stairway. Three floodlights will remain in place and be manually turned on by dam operator which will be functionally adequate for the illumination required.
- E. Replace pole-mounted fixture on the tram line dam crest cabin loading platform with pole-mounted full cutoff type. Mounting height shall not exceed 15'.
- F. Replace two pole-mounted fixtures on the tram line ground level cabin loading platform with pole-mounted full cutoff type. Mounting height shall not exceed 15'.
- G. Replace wall-mounted fixture at entry gate guard shack with wall-mounted full cutoff fixture. Mounting height shall not exceed 15'.
- H. Replace one pole-mounted fixture at entry gateway, one pole-mounted fixture on the road near tram line cabin platform and one pole-mounted fixture by the bridge crossing the stream with pole-mounted full cutoff type. Mounting height shall not exceed 15'.
- I. Replace seven wall-mounted fixtures on office and garage buildings with five wall-mounted full cutoff fixtures. Mounting height shall not exceed 15'.

- J. The automatic time switch will shut off lighting after 10:00 PM or during off hours except limited security lighting.
- K. The automatic time switches will have an override capability to allow the lights to be turned on for off hours (emergency) operations and will automatically turn off again after one hour.
- L. Floodlighting fixtures used for surveying the dam and supporting structures for damage during emergencies are to remain in place and be manually turned on by dam operator to satisfy operational needs which have a critical impact on public safety and will accordingly be operated as described in 2.6. See site plan for locations.
- M. Some select light fixtures are to be left on during night hours for security and operational needs and will accordingly be operated as described in 2.7.
- N. Provide motion sensor controls where practical.

7.4 Estimated ROM Cost

Remove two pole-mounted fixtures near generator building and replace with one wall-mounted full cutoff fixture	1 @ \$1,500 = \$ 1,500
Remove two pole-mounted fixtures on pathway towards trash chute and replace with one pole-mounted full cutoff fixture	1 @ \$2,500 = \$ 2,500
Replace three wall-mounted fixtures on control house with full cutoff type	3 @ \$1,500 = \$ 4,500

Remove seven floodlight fixtures mounted on fence chain near control house stairs	\$ 1,500
Remove pole-mounted fixtures on upper tram line cabin platform and replace with one pole-mounted full cutoff fixture	1 @ \$1,700 = \$ 1,700
Remove two pole-mounted fixtures on lower tram line cabin platform and replace with pole-mounted full cutoff fixtures	2 @ \$1,700 = \$ 3,400
Replace wall-mounted fixture on entry gate guard shack with full cutoff type	1 @ \$1,500 = \$ 1,500
Remove three pole-mounted fixtures near entry gate, roadway by the tram cabin and bridge with pole-mounted full cutoff fixtures	3 @ \$2,500 = \$ 4,500
Replace seven wall-mounted fixture on office and garage buildings with five full cutoff type	5 @ \$1,500 = \$ 7,500
Automatic Timer Switch	3 @ \$1,500 = \$ 4,500
Miscellaneous	<u>\$ 10,500</u>
Subtotal	\$43,600
Design Contingency (25%)	<u>\$10,900</u>
Subtotal	\$54,500
Contractor Overhead and Profit (20%)	<u>\$10,900</u>

Subtotal	\$65,400
-----------------	-----------------

Soft Costs

Project Management, Design, Permits, Inspection (30% of total)	<u>\$19,620</u>
--	-----------------

Total	\$74,120
--------------	-----------------

7.5 Photographs

The following photographs were taken during the dates of site visit stated in Section 2.2.



PH-1 Tram Cabin Platform With Pole Mounted Light



PH-2 Typical Floodlight Used To Illuminate Dam Structure During Emergencies



PH-3 Typical Floodlight Used To Illuminate Dam Structure During Emergencies



PH-4 Floodlight Illuminating The Dam Area At Night



PH-5 Control House and Generator Room Illumination At Night



PH-6 Stairway Pole Lighting At Night



PH-7 Light Trespass at Entry Gate

7.6 Site Plan

The following photographs were taken during the dates of site visit stated in Section 2.2.

E5.0

SHEET

DATE: 01/20/11

SCALE: AS NOTED

DESIGNED BY: S.A.

DRAWN BY: S.A.

PROJECT TITLE: L.A. COUNTY DEPT. OF PUBLIC WORKS - RD 550

SHEET NO.: 37

TUJUNGA

WRD DAMS

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

RURAL OUTDOOR LIGHTING ORDINANCE

PROJECT MANAGER: S.A.

DATE: 01/20/11

SCALE: AS NOTED

DESIGNED BY: S.A.

DRAWN BY: S.A.

PROJECT TITLE: L.A. COUNTY DEPT. OF PUBLIC WORKS - RD 550

SHEET NO.: 37

TUJUNGA

WRD DAMS

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

RURAL OUTDOOR LIGHTING ORDINANCE

PROJECT MANAGER: S.A.

DATE: 01/20/11

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DRAWN BY: S.A.

PROJECT TITLE: L.A. COUNTY DEPT. OF PUBLIC WORKS - RD 550

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DATE: 01/20/11

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DRAWN BY: S.A.

PROJECT TITLE: L.A. COUNTY DEPT. OF PUBLIC WORKS - RD 550

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TUJUNGA

WRD DAMS

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

RURAL OUTDOOR LIGHTING ORDINANCE

PROJECT MANAGER: S.A.

DATE: 01/20/11

SCALE: AS NOTED

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DRAWN BY: S.A.

PROJECT TITLE: L.A. COUNTY DEPT. OF PUBLIC WORKS - RD 550

SHEET NO.: 37

TUJUNGA

WRD DAMS

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RURAL OUTDOOR LIGHTING ORDINANCE

PROJECT MANAGER: S.A.

DATE: 01/20/11

SCALE: AS NOTED

DESIGNED BY: S.A.

DRAWN BY: S.A.

PROJECT TITLE: L.A. COUNTY DEPT. OF PUBLIC WORKS - RD 550

SHEET NO.: 37

TUJUNGA

WRD DAMS

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DEPARTMENT OF PUBLIC WORKS

RURAL OUTDOOR LIGHTING ORDINANCE

PROJECT MANAGER: S.A.

DATE: 01/20/11

SCALE: AS NOTED

DESIGNED BY: S.A.

DRAWN BY: S.A.

PROJECT TITLE: L.A. COUNTY DEPT. OF PUBLIC WORKS - RD 550

SHEET NO.: 37

TUJUNGA

WRD DAMS

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

RURAL OUTDOOR LIGHTING ORDINANCE

EXISTING CONDITION KEYNOTES:

- 1 250W POLE MOUNTED METAL HALIDE FLOODLIGHTS MOUNTED AT 15' ± CONTROLLED BY PHOTOCELL
- 2 250W POLE MOUNTED METAL HALIDE FLOODLIGHTS MOUNTED AT 12' ± CONTROLLED BY PHOTOCELL
- 3 250W POLE MOUNTED METAL HALIDE FLOODLIGHTS MOUNTED AT 45' ± CONTROLLED FROM CONTROL HOUSE
- 4 250W WALL MOUNTED METAL HALIDE LIGHTS MOUNTED AT 10' ± CONTROLLED FROM CONTROL HOUSE
- 5 250W WALL MOUNTED METAL HALIDE LIGHTS MOUNTED AT 45' ± CONTROLLED FROM CONTROL HOUSE
- 6 150W WALL MOUNTED SPOT LIGHTS MOUNTED AT 8' ± CONTROLLED FROM CONTROL HOUSE
- 7 100W INCANDESCENT LIGHT MOUNTED AT 10' ± CONTROLLED BY PHOTOCELL

NOTE:

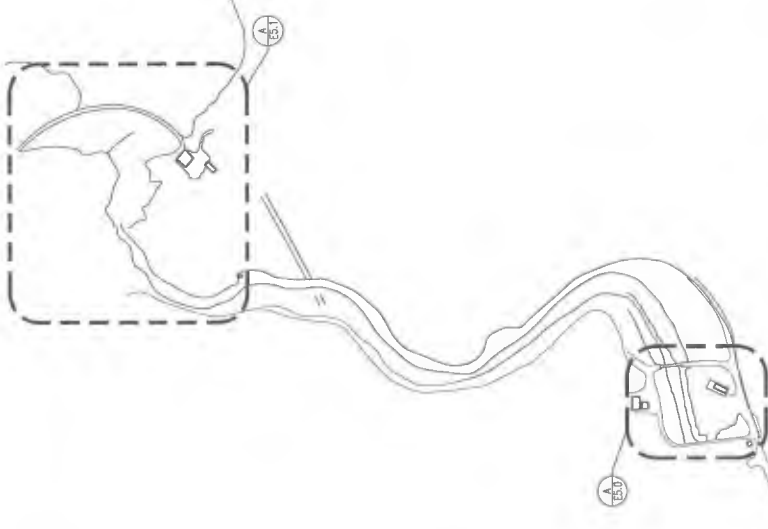
MATERIAL AND FINISH TYPE ARE BASED ON VISUAL OBSERVATION AND ARE ESTIMATED ONLY.

LIGHT METER READINGS:

- 1 3.7 FOOT CANDLES



PACOIMA-LOWER LEVEL



SITE PLAN - PACOIMA

SECTION 8.0

BIG TUJUNGA

8.1 Site Description

- A. The site address is:

809 W Big Tujunga Canyon Road
Sunland, CA 91042

See Section 8.6 for site plan.

- B. Currently some exterior lights are left on all night for security. None of the existing fixtures are the cutoff type.
- C. The lights are photocell controlled and are on from dusk to dawn.

8.2 Non-compliance with Proposed Ordinance

The current non-compliance conditions to the new Ordinance at the site are:

- A. None of the existing fixtures are the full cutoff type.
- B. The lights on the poles at entry gate and canopy near entry gate are mounted higher than 15'.
- C. Some lights are left on between 10:00 p.m. and sunrise which should be addressed by motion sensors and/or turning off 50% of fixtures similar to commercial / Industrial facilities.

8.3 Recommended Modifications

- A. Remove six wall-mounted fixtures from lower level of control house and replace with four wall-mounted full cutoff fixtures. Mounting height shall not exceed 15'.
- B. Remove five ceiling-mounted fixtures on upper balcony of control house and replace with three ceiling-mounted full cutoff fixtures. Mounting height shall not exceed 15'.
- C. Replace the ceiling-mounted fixture by control house back door with full cutoff type. Mounting height shall not exceed 15'.
- D. Remove six wall-mounted fixtures from lower level of valve house and replace with four wall-mounted full cutoff fixtures. Mounting height shall not exceed 15'.
- E. Remove five wall-mounted fixtures on the cottage house and replace with four wall-mounted full cutoff fixtures. Mounting height shall not exceed 15'.
- F. At lower entry gate and the nearby canopy, replace existing pole-mounted lighting fixtures with full cutoff type. Mounting height shall not exceed 15'.
- G. The automatic time switch will shut off lighting after 10:00 PM or during off hours except limited security lighting.
- H. The automatic time switches will have an override capability to allow the lights to be turned on for off hours (emergency) operations and will automatically turn off again after one hour.
- I. Floodlighting fixtures used for surveying the dam and supporting structures for damage during emergencies are to remain in place and be manually turned on by dam operator to satisfy operational needs which have a critical impact on public safety and will accordingly be operated as described in 2.6. See site plan for locations.

- J. Lighting used for the helipad area did not seem to be compliant with applicable regulations and will likely require replacement.
- K. Some select light fixtures are to be left on during night hours for security and operational needs and will accordingly be operated as described in 2.7
- L. Provide motion sensor controls where practical.

8.4 Estimated ROM Cost

Remove six wall-mounted fixtures on lower level of control house and replace with four full cutoff type	4 @ \$1,500 = \$ 6,000
Remove five ceiling-mounted fixtures on upper balcony of control house and replace with three full cutoff type	3 @ \$1,500 = \$ 4,500
Replace ceiling-mounted fixture at back door of control house with full cutoff type	1 @ \$2,500 = \$ 5,000
Remove six wall-mounted fixtures on lower level of valve house and replace with four full cutoff type	4 @ \$1,500 = \$ 6,000
Replace two pole-mounted fixtures at entry gate with full cutoff fixtures	2 @ \$2,500 = \$ 5,000
Automatic Timer Switch	3 @ \$1,500 = \$ 4,500
Miscellaneous	<u>\$ 11,500</u>

Subtotal	\$42,500
Design Contingency (25%)	<u>\$10,625</u>
Subtotal	\$53,125
Contractor Overhead and Profit (20%)	<u>\$10,625</u>
Subtotal	\$63,750
Soft Costs	
Project Management, Design, Permits, Inspection (30% of total)	<u>\$19,125</u>
Total	\$82,875

8.5 Photographs

The following photographs were taken during the dates of site visit stated in Section 2.2.



PH-1 Pole Mounted Fixture By Entry Gate



PH-2 Overall View of Dam Structure



PH-3 Typical Floodlight Used To Illuminate Dam Structure During Emergencies



PH-4 Overall View Of Dam At Nigh



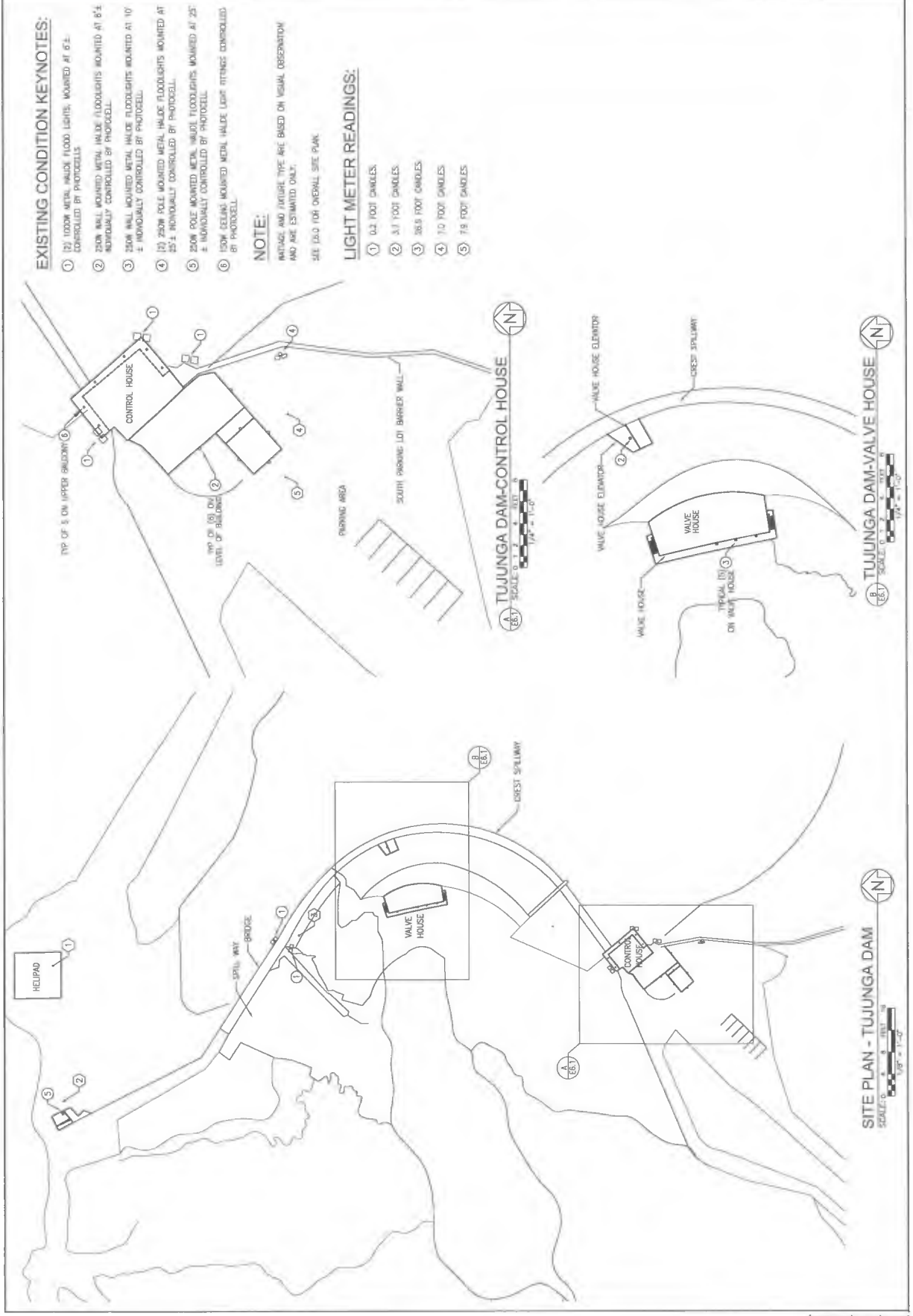
PH-5 Office And Garage Area At Night



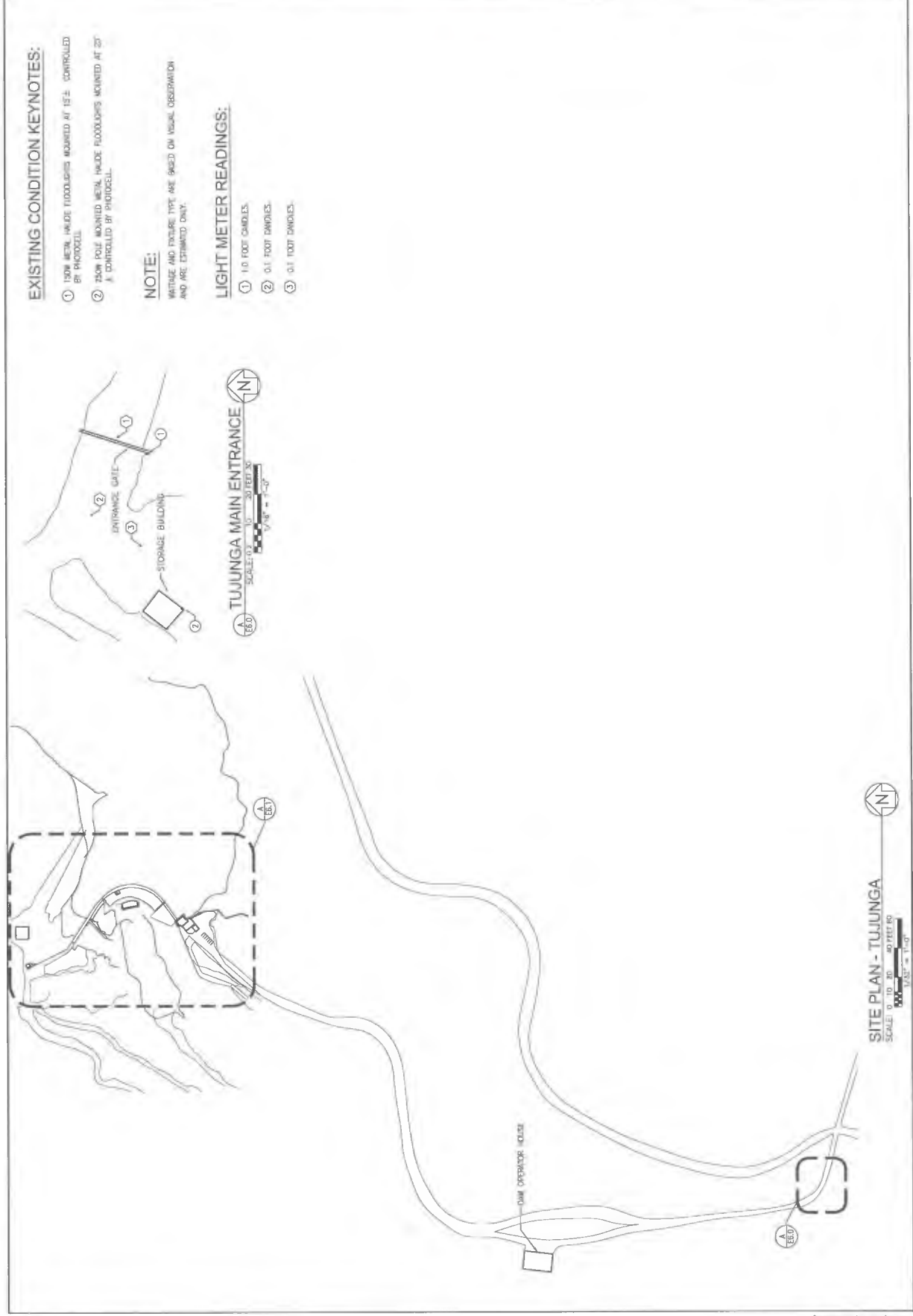
PH-6 View Of Dam From Lower Valve House

8.6 Site Plan

The following Site Plan is based on the best available information as well as observations during site visit.



PROJECT TITLE RURAL OUTDOOR LIGHTING ORDINANCE WRD DAMS COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS		SHEET TITLE TUJUNGA L.A. COUNTY DEPT. OF PUBLIC WORKS - RD 508		SHEET NO. E6.0 SHEET	
DRAWN BY CHECKED BY SCALE DATE		PROJECT NUMBER DATE		APPROVALS DATE	
J.C. CHANG & ASSOCIATES, INC. ENGINEERS ARCHITECTS PLANNERS 305 VAN NESS AVE. SUITE 200 TURBINE, CA 95051 FAX (916) 212-7944 (916) 212-5272		JCCA #12871-2			



SECTION 9.0

NOTES ON ESTIMATED COSTS

- A. The proposed new light fixtures are LED. While these have a higher cost to purchase they have several benefits including much longer life (about twice) than other types. They are also much more efficient producing the same light levels for much lower power consumption. This will eliminate the need to upgrade the electrical service at the county dam sites.
- B. The unit costs shown in the cost estimates for each fixture type include labor costs for installation. In the case of pole mounted fixtures they include the pole, arm, fixture, and foundation.
- C. Design Contingencies are allowance to account for the preliminary nature of the analysis. It accounts for additional costs from unforeseen conditions such as hazardous materials removal and other hidden costs.

18 June 2012

**RURAL OUTDOOR LIGHTING ORDINANCE
LAKE HUGHES WASTEWATER TREATMENT PLANT AND
MAIN PUMP STATION
COST IMPACT ANALYSIS**

REPORT

Prepared for:

**LOS ANGELES COUNTY
DEPARTMENT OF PUBLIC WORKS**
Architectural Engineering Division
900 South Fremont Avenue
Alhambra, California 91803
Telephone: (626) 458-2566
Facsimile: (626) 979-5311



Prepared by:

J.C. CHANG & ASSOCIATES, INC.
Engineers • Architect • Planners
385 Van Ness Avenue, Suite 208
Torrance, California 90501
Telephone: (310) 212-7644
Facsimile: (310) 212-5272
www.jccainc.com
JCCA 12670-8

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Appendices

- I. Site Plans
- II. Photographs

1.0 EXECUTIVE SUMMARY

The County of Los Angeles is considering adopting a new Rural Outdoor Lighting Ordinance initiated by the Department of Regional Planning. This report evaluates the cost impact on the Department of Public Works (DPW) to upgrade their Lake Hughes Wastewater Treatment Plant and Main Pump Station to comply with the proposed ordinance.

The Lake Hughes Wastewater Treatment Plant and Main Pump Station are located in rural areas and therefore impacted by the new ordinance.

While the existing area lighting fixtures in Lake Hughes Water Treatment Plant and Main Pump Station are full cut-off types, the total mounting height is 27' (base and pole) and would need to be reduced to 15' to comply with the ordinance. Existing floodlight type wall-mounted fixtures on both sides are not full cut-off types and would need to be replaced in order to comply with the ordinance. In addition, the existing lighting fixtures serving the Water Treatment Plant Platform are classified hazardous area fixtures due to the potential presence of methane. If a variance is not granted to maintain the hazardous area fixtures due to special conditions, they would require modification or replacement.

Also, current lighting fixture control systems do not comply with the ordinance.

Estimated Rough Order of Magnitude (ROM) Costs:

A.	Lake Hughes Wastewater Treatment Plant:	\$ 69,030
B.	Lake Hughes Main Pump Station	\$ 17,355

2.0 SCOPE OF THE ANALYSIS

- 2.1 The County of Los Angeles is considering adopting a new Ordinance amending Title 22 of the County Code. The Ordinance will establish a Rural Outdoor Lighting District that will establish guidelines governing outdoor lighting. The main objectives include curtailing light pollution, preventing light trespass onto adjoining properties, promoting dark skies, conserving energy, etc., while permitting reasonable uses of outdoor lighting for night time safety, security, productivity, and enjoyment.
- 2.2 DPW Lake Hughes Water Treatment Plant and Main Pump Station are located in rural areas and will be effected by the ordinance.
- 2.3 The scope of this report is to:
- A. Review the requirements of the Ordinance and analyze two of the sites to confirm existing installation and changes required to comply with the Ordinance.
 - B. Provide a rough order of magnitude (ROM) cost estimate to implement the required changes.
 - C. The treatment Plant site is zoned C3-Unlimited Commercial. The Pump Station site zoned A1-Light Agricultural.
- 2.4 The main provisions of the new Ordinance as it affects the Lake Hughes Water Treatment Plant and Main Pump Station can be summarized as follows:
- A. Outdoor lighting fixtures must be fully shielded type (22.44.540 C). That is a light fixture that emits no light in the area above a horizontal plane passing through the lowest point of the fixture and not more than 10 percent of its light in the area between zero and 10 degrees below such horizontal plane. A full cutoff fixture is a fully shielded fixture of a specific design, usually a box or oval shape with a flat bottom.
 - B. Light trespass measured at the property line must not exceed 0.5 foot-candles where the adjoining property is zoned residential, open space, agricultural or public right-of-way.
For other adjoining zoning the limit is 1.0 foot-candles.
 - C. The fixture height from ground level to the top of the fixture (22.44.450 D) is limited to:
 - 1. Residential, agricultural, open space and watershed:
20 Feet – except if over 15 feet the fixture lumens is limited to 400. This effectively limits the height to **15 feet**, since 400 lumens is an extremely low lighting level (equivalent to a 40-watt incandescent lamp).
 - 2. For industrial zoning
35 Feet

3. For parcels zoned other than above 30 Feet
- D. Outdoor lighting must be turned off between the hours of 10 p.m. and sunrise. There must be an automatic time switch control to turn the lights off. The timer must be capable of separate schedules for weekdays and weekends. (22.44.550)

Exceptions:

1. Where there are night time operations the lights must be turned off within one hour of close of business.
2. Commercial and industrial uses may reduce the lighting level to 50 percent between 10 p.m. and sunrise instead of turning off all lights. (22.44.550 B.3.b.)
3. Security and operations lighting for public facilities. (22.44.550 C.4.c.). (This may not apply since the sites in question may not be classified as Public Facilities).

2.5 The two sites were visited by JCCA staff (Shay Redmond, Sevag Avanesian and JCCA's lighting consultant Jun Apolinario), DPW Senior Electrical Engineer (John Fallon) and were assisted by site staff. Both sites were inspected on Tuesday 05/15/2012. Existing conditions were recorded and are shown on the drawings included in Appendix 1. Light level readings were taken after dark and the existing fixture types were noted. The cost estimates herein were prepared based on the input from the lighting consultant and from lighting contractors.

3.0 Lake Hughes Wastewater Treatment Plant

3.1 Site Description

- A. The site Address is:
17201 Lake Elizabeth Road
Lake Hughes, CA 93532

The site area is approximately 0.9 acres. See Appendix I for the site plan.
- B. Currently most exterior lights are left on all night for security. All lighting is controlled by a timer located near electrical panels. Some of the existing fixtures are the not cutoff type.

3.2 Non-compliance with Proposed Ordinance

The current non-compliance conditions to the new Ordinance at the site are:

- A. Wall-mounted flood lights installed on the sides of the existing buildings are not the full cutoff type.
- B. All pole-mounted lighting fixtures are mounted higher than 15'.
- C. Portions of the South property line have lighting levels above 0.5 foot candles.
- D. The lighting level at the South property line at the light fixture at the entry gate exceeds 0.5 foot candles.
- F. Lights are left on between 10:00 p.m. and sunrise.
- G. The explosion proof fixtures mounted on the treatment plant platform are not the cutoff type and are higher than 15' above grade.

3.3 Recommended Modifications

- A. Modify all existing poles to reduce the height at which the fixture is mounted not to exceed 15'. This will require drilling the poles and mounting the light fixtures at 15'.
- B. Install new light timer switch near the entry gate to allow for turning on the two pole-mounted fixtures illuminating the gate and road.
- B. Replace all wall-mounted fixtures, none of which are full cut-off types, with full cut-off wall packs.
- C. Provide one additional wall-mounted wall pack fixture and timer switch near the platform southern stairway.

- D. Currently there are ten fixtures on the treatment plant platform. All ten fixtures are explosion-proof fixtures rated for hazardous areas (Class 1, Division1). These fixtures are not the full cut-off type. This class of light fixture is not available with a cut-off option in order to avoid accumulation of explosive gasses or particles. The preferred approach would be to request a variance from the ordinance since these light fixtures are used in a special application. If it is not possible to obtain a variance, the fixture could be modified to provide the light cut-off. This may affect the fixture rating. At a minimum, a hole would have to be drilled in the highest point of the cutoff shroud to allow gasses to escape.
- G. Provide new Automatic time switch to serve the explosion-proof fixtures on platform.
- G. Program the existing automatic time switches to shut off all lights between the hours of 10:00p.m. and sunrise.
- H. The automatic time switches will have an override capability to allow the lights to be turned on for off hours (emergency) operations and will automatically turn off again after one hour.

3.4 Estimated ROM Cost

Modify height of and re-mount fixtures	4@ \$2,500 = \$10,000
Replace all wall-mounted lights On buildings with full cut-off	5@ \$1,200 = \$6,000
One additional wall-mounted light For platform stairway	1@ \$1,200 = \$1,200
Additional wiring and trenching for Light switch at gate	1@ \$10,000 = \$10,000
Additional wiring and trenching for New wall pack and switch near platform	1@ \$1,500 = \$1,200
New Automatic Time Switch	1@ \$1,500 = \$1,500
Miscellaneous	<u>\$ 5,500</u>
Subtotal	\$35,400
Design Contingency (25%)	<u>\$8,850</u>
Subtotal	\$44,250
Contractor Overhead and Profit (20%)	<u>\$8,850</u>
Subtotal	\$53,100

Soft Costs	
Project Management, Design, Permits, Inspection (30% of total)	<u>\$15,930</u>
Total	\$69,030

4.0 Lake Hughes Main Pump Station

4.1 Site Description

- A. The site address is:
43666 N Trail K
Lake Hughes, CA 93532

The site area is approximately 0.2 acres. See Appendix 1 for site plan.
- B. Currently all exterior lights are left on all night for security. All lighting is controlled by a timer located on the 2nd floor control building.
- C. The site is served by existing pole-mounted flood lights as well as a wall-mounted flood light.

4.2 Non-compliance with Proposed Ordinance

The current non-compliance conditions to the new Ordinance at the site are:

- A. Wall-mounted flood light installed on existing building is not the full cut-off type.
- B. All pole-mounted lighting fixtures are mounted higher than 15'.
- C. The lighting level at the Northwest property line at the light fixture at the entry gate exceeds 0.5 foot candles. Three of the four pole mounted lights were burned out. If they were operational, the light level at the property line adjacent to each of them would also have exceeded 0.5 foot candles.
- D. Lights are left on between 10:00 p.m. and sunrise.

4.3 Recommended modifications

- A. Eliminate the four pole-mounted fixtures.
- B. Eliminate the wall-mounted fixture on the building and replace it with item C below.
- C. Provide one new full cut-off fixture under the control building.
- D. Provide new light time switch on the column closest to the stairway leading up to the control room.
- E. Program the existing automatic time switch to shut off all lights between the hours of 10:00p.m. and sunrise.

4.4 Estimated ROM Cost

A. Ordinance Compliance

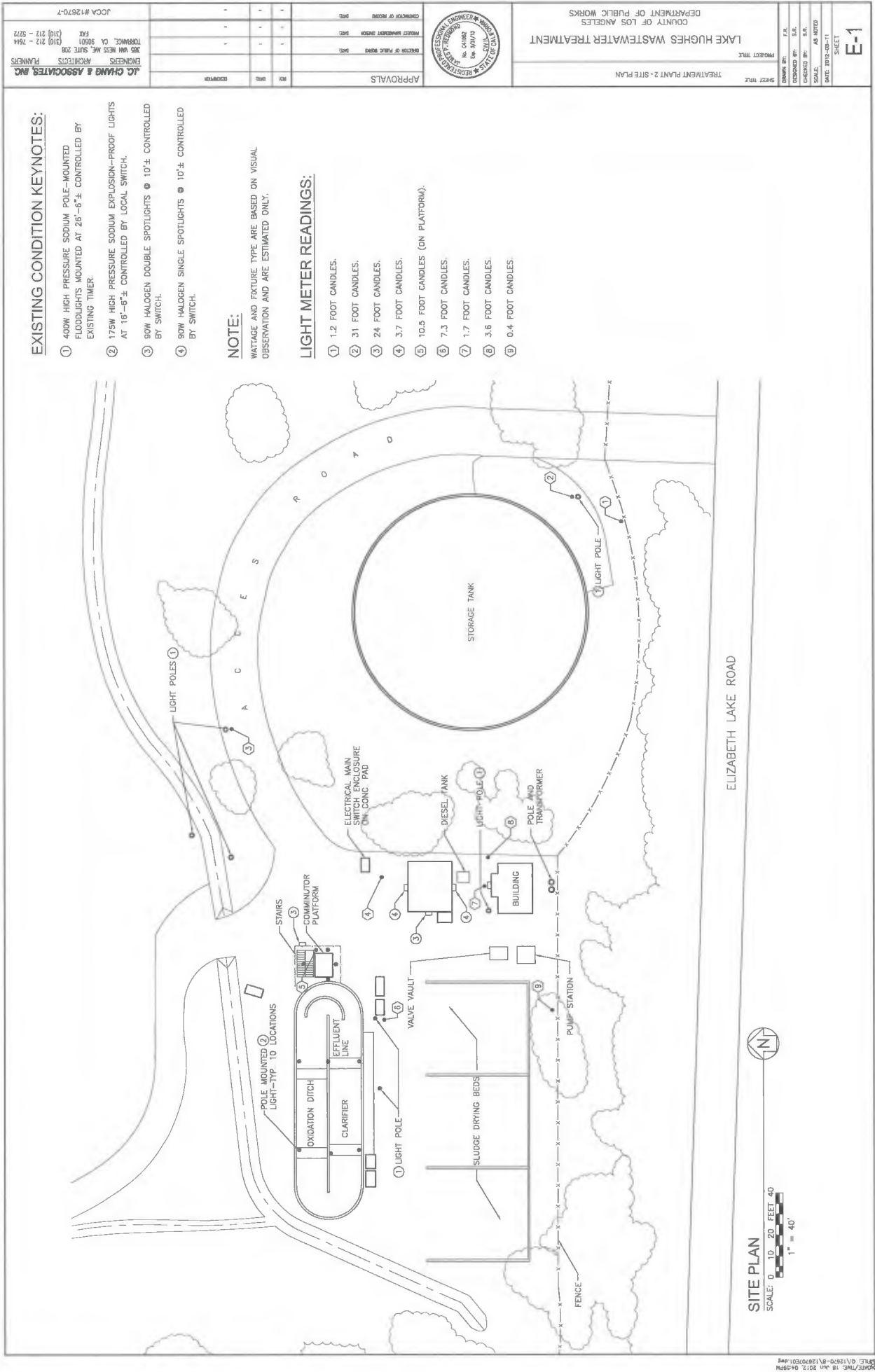
Removal of pole-mounted fixtures	4@ \$1,250 = \$ 5,000
One Additional light under building	1@ \$1,750 = \$ 1,750
Removal and replace one wall-mounted fixture	1@ \$900= \$ 900
Miscellaneous	<u>\$ 1,250</u>
Subtotal	\$ 8,900
Design Contingency (25%)	<u>\$ 2,225</u>
Subtotal	\$ 11,125
Contractor Overhead and Profit (20%)	<u>\$ 2,225</u>
Subtotal	\$ 13,350
Soft Costs	
Project Management, Design, Permits, Inspection (30% of total)	<u>\$ 4,005</u>
Total	\$ 17,355

5.0 Notes on Estimated Costs

- A. The proposed new light fixtures are LED. While these have a higher cost to purchase they have several benefits including much longer life (about twice) than other types. They are also much more efficient producing the same light levels for much lower power consumption. This will eliminate the need to upgrade the electrical service at the maintenance yards.
- B. Design Contingencies are allowance to account for the preliminary nature of the analysis. It accounts for additional costs from unforeseen conditions such as hazardous materials removal and other hidden costs.

APPENDIX I

SITE PLANS



EXISTING CONDITION KEYNOTES:

- ① 400W HIGH PRESSURE SODIUM POLE-MOUNTED FLOODLIGHTS MOUNTED AT 26'-6"± CONTROLLED BY EXISTING TIMER.
- ② 175W HIGH PRESSURE SODIUM EXPLOSION-PROOF LIGHTS AT 16'-8"± CONTROLLED BY LOCAL SWITCH.
- ③ 90W HALOGEN DOUBLE SPOTLIGHTS @ 10'± CONTROLLED BY SWITCH.
- ④ 90W HALOGEN SINGLE SPOTLIGHTS @ 10'± CONTROLLED BY SWITCH.

NOTE:

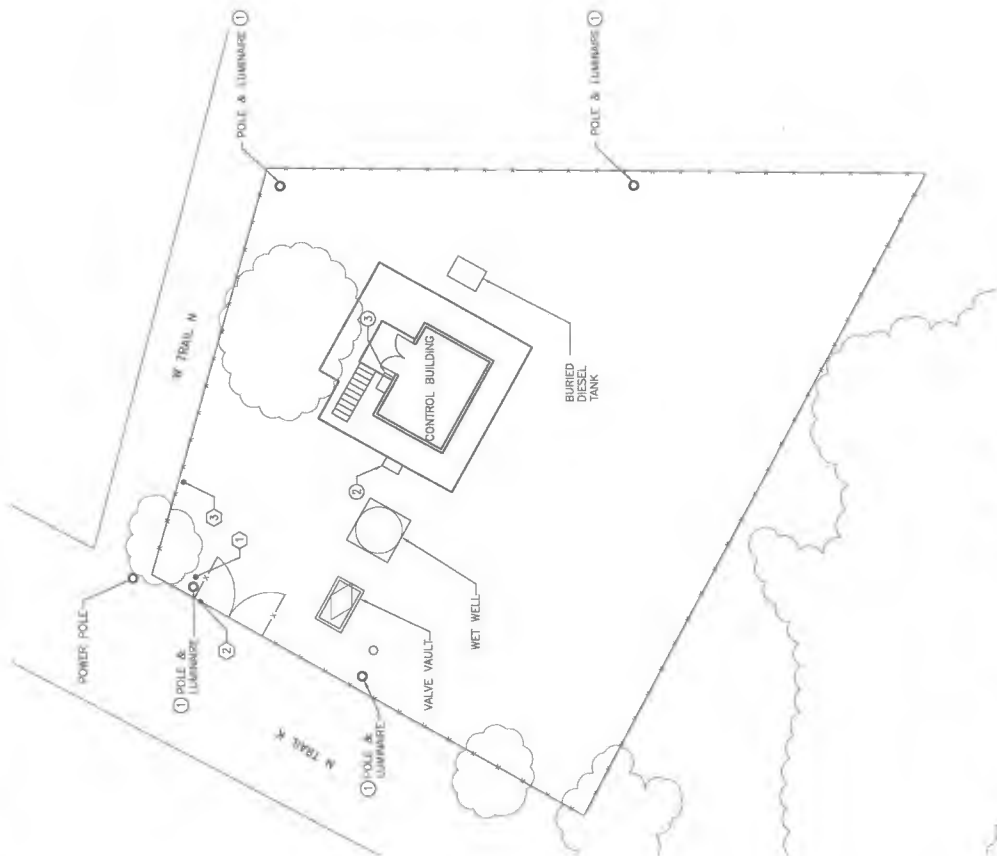
WATAGE AND FIXTURE TYPE ARE BASED ON VISUAL OBSERVATION AND ARE ESTIMATED ONLY.

LIGHT METER READINGS:

- ① 1.2 FOOT CANDLES.
- ② 31 FOOT CANDLES.
- ③ 24 FOOT CANDLES.
- ④ 3.7 FOOT CANDLES.
- ⑤ 10.5 FOOT CANDLES (ON PLATFORM).
- ⑥ 7.3 FOOT CANDLES.
- ⑦ 1.7 FOOT CANDLES.
- ⑧ 3.6 FOOT CANDLES.
- ⑨ 0.4 FOOT CANDLES.

J.C. CHANG & ASSOCIATES, INC. ENGINEERS ARCHITECTS PLANNERS 205 W. 10TH AVE. SUITE 200 TORRANCE, CA 90501 FAX (310) 212-7844 JCCA #12670-7		PROJECT TITLE TREATMENT PLANT 2 - SITE PLAN		SHEET TITLE E-1	
APPROVALS J.C. CHANG PROJECT MANAGER J.C. CHANG PROJECT MANAGER		DEPARTMENT OF PUBLIC WORKS COUNTY OF LOS ANGELES LAKE HUGHES WASTEWATER TREATMENT		DRAWN BY: F.H. DESIGNED BY: S.H. CHECKED BY: S.H. SCALE: AS NOTED DATE: 2012-05-11 SHEET	





EXISTING CONDITION KEYNOTES:

- ① 400W HIGH PRESSURE SODIUM POLE-MOUNTED FLOODLIGHTS MOUNTED AT 26'-0" & CONTROLLED BY EXISTING TIMER.
- ② 20W HIGH PRESSURE SODIUM SINGLE SPOTLIGHTS @ 10'± CONTROLLED BY SWITCH.
- ③ WARNING LIGHTS WALL MOUNTED TO CONTROL BUILDING 8'± ABOVE SECOND FLOOR STAIRWAY LANDING.

NOTE:

MATERIAL AND FINISHES TYPE ARE BASED ON VISUAL OBSERVATION AND ARE ESTIMATED ONLY.

LIGHT METER READINGS:

- ① 31 FOOT CANDLES
- ② 1.7 FOOT CANDLES
- ③ 2.9 FOOT CANDLES

PROJECT TITLE MAIN PUMP STATION - SITE PLAN		SHEET TITLE E-2	
PROJECT NO. JCCA #12670-7		DATE 01/28/2012	
DESIGNED BY JCC		CHECKED BY JCC	
DRAWN BY JCC		SCALE AS SHOWN	
DATE 01/28/2012		SHEET E-2	
LAKE HUGHES WASTEWATER TREATMENT COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS			
APPROVALS			
COMMISSIONER OF RECORD DATE	PROJECT MANAGER/ENGINEER DATE	DIRECTOR OF PUBLIC WORKS DATE	DATE 01/28/2012
BY JCC	DATE 01/28/2012	DATE 01/28/2012	DATE 01/28/2012
JCC CHANG & ASSOCIATES, INC. ENGINEERS PLANNERS ARCHITECTS 385 W. WESS AVE. SUITE 208 TORRANCE, CA 90501 TEL: (310) 212-7844 FAX: (310) 212-7272			

APPENDIX II

PHOTOGRAPHS

Note:

Photographs 1 to 8 are for Lake Hughes Wastewater Treatment Plant

Photographs 9 to 12 are for Lake Hughes Main Pump Station



PH - 1: Wastewater Treatment Platform



PH - 2: Pole-mounted Lighting Fixtures Requiring Height Reduction



PH - 3: Explosion-proof Fixture Serving Wastewater Treatment Platform



PH - 4: Wall-mounted Flood Lighting



PH - 5: Treatment Plant Platform Lighting



PH - 6: Wall-mounted Lighting Fixtures



PH - 7: Pole-mounted Lighting Fixture At Entrance Road



PH - 8: Wall-mounted Flood Light On Side Of Building



PH - 9: Pole-mounted Light Fixture By Gate



PH - 10: Wall-mounted Floodlight On Side of Control Room Building



PH - 11: Pole-mounted Fixture To Be Eliminated



PH - 12: Warning Lights To Be Eliminated

**DARK SKIES ORDINANCE COMPLIANCE
ACTION PLAN**

**LOS ANGELES COUNTY WATERWORKS
DISTRICT NOS. 21, 29, 36, 27, AND 40**

**PREPARED BY
DAVID MERRELL**

APRIL 2012

April 24, 2012

TO: Adam Arik
Daniel J. Lafferty

FROM: Eleni Hailu
Project Management, Mapping and Right of Way,
Budget, and Procurement Section



**LOS ANGELES COUNTY WATERWORKS DISTRICT NOS. 21, 29, 36, 37, AND 40
DARK SKIES ORDINANCE COMPLIANCE ACTION PLAN
PROJECT NO. Y54002261X**

Attached for your approval is an Action Plan prepared by the Project Management Unit in cooperation with both Malibu and Lancaster Electro-Mechanic staff for replacement of existing lighting fixtures at various Waterworks facilities to comply with the draft Dark Skies Ordinance. This ordinance would amend Title 22 of the Los Angeles County Code for the establishment of a rural outdoor lighting district to regulate outdoor lighting in the rural areas of Los Angeles County. The Action Plan includes background information on existing conditions, statement of the problem, and the scope of work for the recommended solution. The Action Plan also details project objective, funding sources, implementation cost, and an implementation schedule.

SK:ea

memo 403 - Dark Skies Action Plan

Attach.

BACKGROUND/ EXISTING CONDITION/ PROBLEM STATEMENT

On January 24, 2012, the Los Angeles County Board of Supervisors (Board) passed a motion instructing County Counsel, in cooperation with the Director of Regional Planning and the Director of Public Works, to prepare an ordinance amending Title 22 of the Los Angeles County Code as recommended by the Regional Planning Commission except as modified by five specific amendments and bring the revised ordinance back to the Board of Supervisors for final approval. The motion further instructed the Director of Public Works, the Director of Internal Services, and all other departments that operate facilities affected by this ordinance, to provide the Board of Supervisors with a report detailing how they plan to comply with this ordinance within six months, and as needed thereafter. The motion also instructed that this report should be prepared with the goal of finding the most cost-effective method of complying with this ordinance and reducing light impacts to the rural communities of Los Angeles County; and, prohibited Public Works from using Road Funds or Flood Control District funds for this purpose, unless they receive explicit permission at a later date from the Board of Supervisors. This Action Plan was prepared in response to the last portion of the Board Motion and presents a list of the affected Waterworks Districts' facilities and a scope of work for compliance with the draft ordinance.

According to a Regional Planning board letter for the draft ordinance dated January 24, 2012, on December 14, 2010, the Board approved a motion instructing the Director of Regional Planning to prepare an ordinance that establishes a "rural lighting" zoning overlay that would apply to all of the County's rural unincorporated areas; including those in the Antelope Valley, the Santa Clarita Valley, and the Santa Monica Mountains. The ordinance would provide a single set of objective, measurable standards for outdoor lighting that would be applicable within the rural lighting zoning overlay. In addition, the Board instructed the Director of Regional Planning to coordinate with the Director of the Department of Public Works to develop a set of standards for street lights that would be applicable within the rural lighting zoning overlay.

Waterworks Division performed site inspections and identified 50 Waterworks sites affected by the proposed ordinance. Attachment A illustrates the rural areas that will be covered by the ordinance and Attachment B shows the 50 affected Waterworks sites. Some of the sites contain multiple facilities that currently do not comply with the draft ordinance and some sites contain no lighting.

SUMMARY OF DRAFT ORDINANCE REQUIREMENTS

The compliance requirements under the draft ordinance are as follows:

Development Regulations (22.44.540)

- A. Lighting allowance: Outdoor lighting shall not exceed the lighting allowance within the 2008 Building Energy Efficient Standards for Lighting Zone 2 of 0.045

watts per square foot and comply with the lighting trespass regulations in subsection B below;

- B. Light trespass: Outdoor lighting shall not cause light trespass. The following is considered light trespass;
 - 1. Over 0.5 foot-candles where the zoning on the adjacent parcel is a residential, open space, or agricultural zone, or public right-of-way; or
 - 2. Over 1.0 foot-candles where the zoning on the adjacent parcel is any other zone besides residential, open space or agricultural.
- C. Shielding: All outdoor lighting shall be fully shielded.
- D. Maximum height: The maximum height for outdoor lighting shall be as follows, measured from finished grade to the top of the fixture, unless noted otherwise in Section 22.44.560:
 - 1. Residential, agricultural, open space and watershed zones – 20 feet. Each outdoor light installed above 15 feet in height shall have a manufacturer's maximum output rating of less than 400 lumens;
 - 2. Zoning on the property is any other zone besides residential, agricultural, open space, watershed or industrial – 30 feet; and
 - 3. Industrial zones – 35 feet.
- E. Maintenance: Outdoor lighting shall be maintained in good repair, intact and free of severe cracks, with shielding securely attached and functional as designed.

Additional Requirements for Mixed Use Buildings and Commercial Uses (22.44.550)

- A. Building entrance lighting: All building entrances shall install light fixtures that provide accurate color rendition so that persons entering or exiting the establishment can be easily recognized. Building entrance lighting shall be used between sundown and 10 p.m. or within one hour past the close of the business, whichever is later.
- B. Hours of operation:
 - 1. Outdoor lighting shall be turned off between the hours of 10 p.m. and sunrise, except where uses operate past 10 p.m., in which case lighting shall either be turned off within one hour after the close of business or regulate lighting in compliance with Section 22.44.560.C.
- C. Automatic controls: All outdoor lighting systems shall install automatic time switch control devices or system used to turn lighting off after 10:00 p.m., and controls shall:
 - 1. Be capable of programming different schedules for weekdays and weekends; and
 - 2. Have program backup capabilities that prevent the loss of the device's schedules for at least 7 days, and the device's time and date setting for at least 72 hours if power is interrupted.
 - 3. Either subsection 3.a or 3.b below may be used to regulate lighting between 10:00 p.m. and sunrise;
 - a. Motion sensors used to turn on lighting after 10 p.m. when activity is detected. The motion sensor shall be capable of automatically

- turning off all the lights in an area no more than 10 minutes after the area has been vacated. The motion sensor fixture shall be fully shielded; or
 - b. In lieu of turning all lighting off, commercial and industrial uses may reduce light levels or eliminate (turn off) by a minimum of 50 percent between 10 p.m. and sunrise.
4. Exemptions to hours of operation:
- a. Building code-required lighting for steps, stairs, walkways, and points of ingress and egress to buildings.
 - b. Lighting governed by a discretionary use permit in which types of lighting and times of operation are specifically identified.
 - c. Security and operations lighting for public facilities.

Prohibited Lighting (22.44.570): The following types of outdoor lighting shall be prohibited:

- A. Drop-down lenses;
- B. Mercury vapor lights;
- C. Ultraviolet lights; and
- D. Searchlights, laser lights, or any other lighting that flashes, blinks, alternates, or moves.

PROPOSED SOLUTION/ SCOPE OF CONCEPT

The vast majority of Waterworks sites can meet the terms of the draft ordinance by simple light fixture modifications. These modifications will include replacement of light bulbs and installation of shielding on the fixtures to meet the specific lighting allowance and light trespass requirements of each site. Attachment C provides a summary of site modifications required to comply with the proposed ordinance. Attachment D delineates acceptable fixture types recommended by Regional Planning.

The January 24, 2012, Board Motion limited alternatives and eliminated all exemptions for public facilities, except for those operated by the Sheriff's Department or Probation Department, or those that house (temporarily or permanently) incarcerated persons. However, item four of the motion will allow the Director of Regional Planning to approve taller light standards than the heights specified in this ordinance where the property owner or applicant demonstrates that taller fixtures would reduce the total number of light fixtures needed, and would reduce the amount of light trespass. The Director Regional Planning has indicated in previous discussions with Public Works that reasonable variances will be afforded as necessary for security and safety requirements including lighting fixtures placed on top of tanks which are above height restrictions.

A variance will be filed with Regional Planning for all cases where security or other necessary requirements do not allow the recommended modifications for compliance with the draft ordinance. Attachment C identifies 24 sites with fixture heights, such as light fixtures on top of tanks, exceeding the requirements of the ordinance.

ENVIRONMENTAL DOCUMENT AND PERMIT REQUIREMENTS

No environmental documentation is required for the proposed light fixture modifications.

R/W REQUIREMENTS

All affected sites are located entirely within Waterworks District owned property. Therefore, no right-of-way processing or staging area for the actual work will be required.

PRELIMINARY COST ESTIMATE

The Action Plan implementation cost estimate is based on information gathered from Waterworks field personnel's site visits. A construction contract is not necessary for the implementation of this Action Plan. All materials will be procured and installed by Waterworks field personnel.

Preliminary Cost Estimate	
Cost Category	Amount
Materials and Labor (See Attachment C for detailed cost breakdown)	\$25,000
Project Management	\$8,000
Contingencies (10%)	\$2,500
Inflation (3%)	\$750
Total ≈	\$36,250

The cost estimate provided is based on standard pricing and does not reflect a spike in demand for materials or cost, expected from the short compliance time span given.

FUNDING OPTIONS

Sufficient funds are available within each District's General Fund to meet the cost estimate provided.

OTHER AGENCIES INVOLVED

The Los Angeles County Internal Services Department and the Antelope Valley East Kern Water Agency own facilities within Waterworks Districts sites. These facilities' lighting fixtures will require modifications as well. Therefore, Waterworks will work with these agencies to make their facilities compliant with the ordinance. These agencies will be billed for modifications performed by Waterworks.

SUPPORT DIVISION INVOLVEMENT

Services that will be required from other divisions:

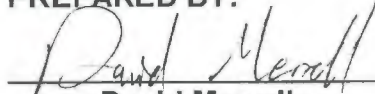
OSD: Procurement of materials through main warehouse if available.

SCHEDULE

The preliminary schedule is based on an assumption of one year from date of submission of report to adoption of draft ordinance. Important schedule deadlines are presented below with implementation durations provided by the field. Compliance is required within 6 months of the passing of the ordinance for all facilities which have light trespass. It is assumed conservatively that all Waterworks facilities fall under this requirement. (See Attachment E for detailed schedule)

Milestone Description	Estimated Start
Action Plan Due to Regional PI	June 24, 2012
Adoption of Ordinance	June 17, 2013
Apply for Variances	June 17, 2013
Procurement of Materials	June 17, 2013
Installation of Fixtures	July 16, 2013
Complete Installations	August 06, 2013
Bill Outside Agencies	August 06, 2013
Action Plan Complete	September 30, 2013

PREPARED BY:


David Merrell

4685
Extension

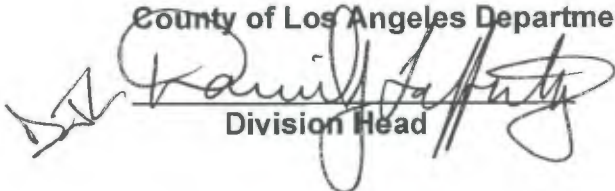
REVIEWED AND RECOMMENDED BY:


Section Head

4/23/12
Date

APPROVED BY:

County of Los Angeles Department of Public Works – Waterworks Division


Division Head

4/26/12
Date

Rural Outdoor Lighting District

LEGEND:

- Base Layers**
- Highways
 - Regional Forest Incorporated City Boundary
 - Other Incorporated Area
 - Harbor District

NOTE:

Proceedings for the 2011 Annual Meeting of the International Association of Agricultural and Applied Economists, September 7-11, 2011, Chicago, Illinois

VICINITY MAP:



Dr. J. G. Smith, D.D.S., 1000 14th St.
Dept. of Preventive Planning
3010 14th Avenue, S.E.
Atlanta, Georgia, GA 30316

Source: U.S. Census Bureau, *Marriage, Divorce, Remarriage in the 1990s* (Washington, D.C.: U.S. Government Printing Office, 1996), p. 10.



DPW Facilities within the Rural Lighting District

Legend

- Rural Lighting Districts
- Unincorporated Areas outside the District
- Incorporated Cities
- Water Bodies
- Freeways
- Flood Maintenance Facilities (6)
- Road Maintenance Facilities (10)
- Sewer Maintenance Facilities (8)
- SMD Facilities Impacted by Ordinance (2)
- Waterworks Pump Station Sites (25)
- Waterworks Water Tank Sites (46)
- Waterworks Well Sites (9)

80 Waterworks Facilities by count above

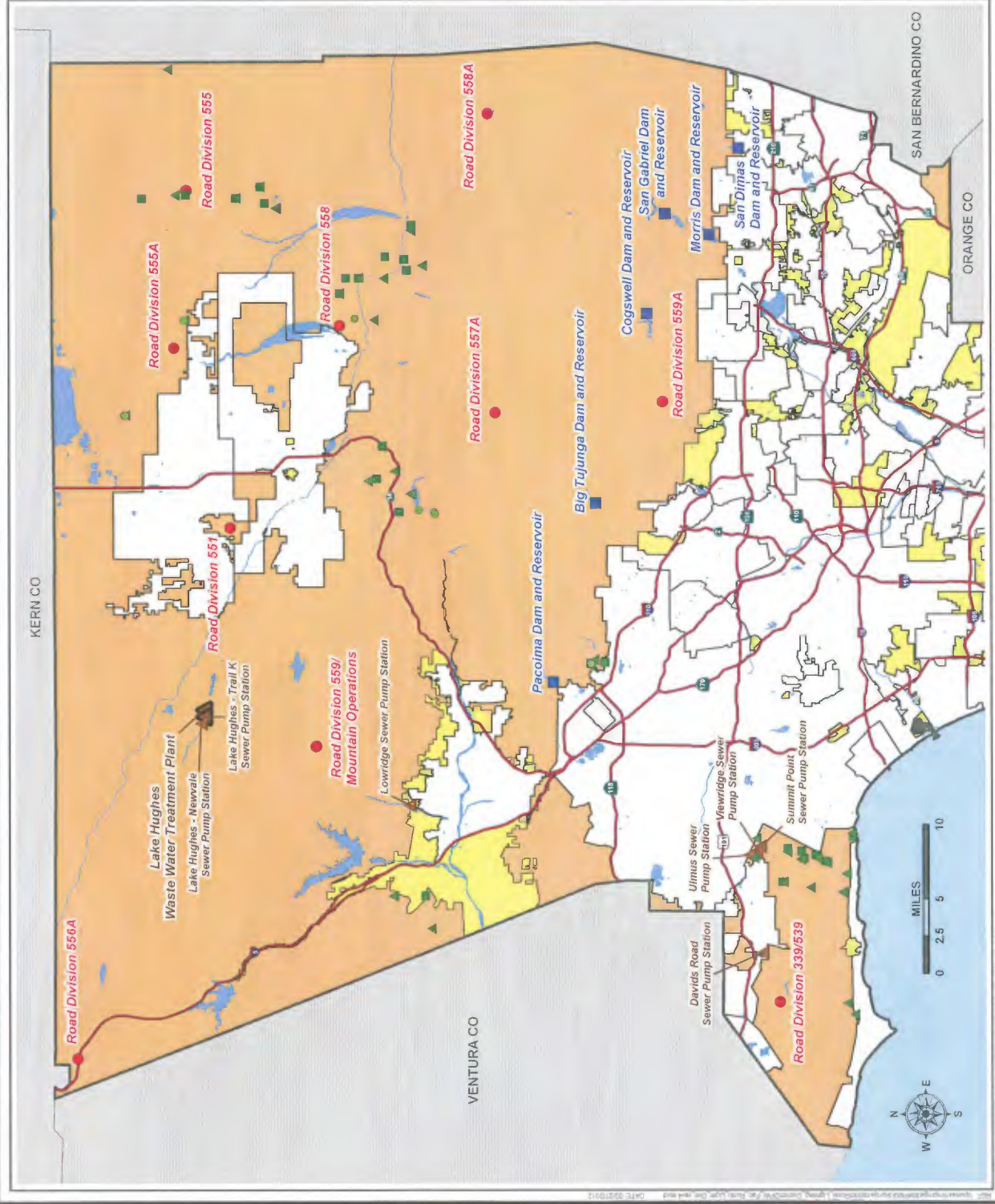
62 Waterworks Sites

Some Waterworks Sites contain multiple non-compliant facilities.

Some Waterworks Sites contain no lighting and are in compliance by default

50 Waterworks Sites require modifications

Data contained in this map is provided in whole or in part from the Los Angeles County Department of Public Works digital database.



No. 79
60
19

DARK SKIES ORDINANCE COMPLIANCE WORKSHEET

SITE SUMMARY, PLAN, ESTIMATES

Attachment C

Light fixtures > 15 ft height
Light fixtures for tank access hatch only
Light fixtures for other reasons

Site Name / Identifier (from table)	FACILITY Type (check)	# of Lights Per Facility	Fixture Type e.g. (Incandescent, HP Sodium, Metal Halide, Mercury Vapor, Fluorescent, quartz Halogen)	Height of Light Fixtures	Fixture Hood y/n	Compliance Action, Adjust, Add hood, or replace	Time Man hours	Price of parts	Total Estimated costs	Site Area (sf)	Site Max Watts (0.045 Watts/sf)
Dist 21											
District 21 West Tank	Building										
	Tank	x									
	Well										
	Other										
District 21 City Booster	Building	0	No work required								
	Tank	0									
	Well	0									
	Other	0									
District 21 Well Site	Building	x	High Pressure Sodium Flood	10 ft		Replace with hooded fixture	1.5	\$ 300	\$ 401	5,639	253.8
	Tank										
	Well										
	Other										
District 21 East Tank	Building										
	Tank	x	Flood: 1	2-30 ft	n	Replace with hooded fixture	1	\$ 150	\$ 218	4,124	185.6
	Well					Replace with hooded fixture	0.5	\$ 75	\$ 109		
	Other										

District 29

Owen Tank/P.S.	Building										
	Tank										
	Well										
	Other	x	Flood: 2	10 ft		Replace with hooded fixture	1	\$ 150	\$ 218	6,114	275.1
Fernwood Tank/ P.S.	Building										
	Tank										
	Well										
	Other	x	1 Flood Halogen w/motion sensor 2 each Metal Halide 6 each	8 ft		Replace with hooded fixture	0.5	\$ 75	\$ 109		
Saddle Peak Tank	Building	x									
	Tank										
	Well										
	Other	x	Flood 1	30 ft		Replace with hooded wall pack	3	\$ 600	\$ 803	9,270	417.2
Topanga Forks Tank	Building										
	Tank	x				Replace with hooded fixture	1	\$ 75	\$ 143		
	Well										
	Other										
Topanga Oaks Tank	Building										
	Tank	x	Flood: 1	28 ft		Replace with hooded fixture	1.5	\$ 225	\$ 326	8,785	395.3
	Well										
	Other	x	Flood: 1	7 ft		Replace with hooded fixture	0.5	\$ 75	\$ 109	2,615	117.7
New Summit Tank	Building										
	Tank										
	Well										
	Other	x	Flood: 1	8 ft		Replace with hooded fixture	0.5	\$ 75	\$ 109		
Topanga Beach Tanks	Building										
	Tank	x	Flood: 1	30 ft		Replace with hooded fixture	1	\$ 150	\$ 218	32,873	1479.3
	Well										
	Other										
Topanga Beach Tanks	Building										
	Tank	x	Flood: 1	45 ft		Replace with hooded fixture	2	\$ 300	\$ 435	82,629	3718.3
	Well										
	Other	x	Flood: 1	10 ft		Replace with hooded fixture	2	\$ 300	\$ 435		

Light bulbs will be replaced as needed to make sure we don't exceed the specific lighting allowance for each site.

DARK SKIES ORDINANCE COMPLIANCE WORKSHEET

SITE SUMMARY, PLAN, ESTIMATES

Site Name / Identifier (from table)	FACILITY Type (check)	# of Lights Per Facility	Fixture Type e.g. (Incandescent, HP Sodium, Metal Halide, Mercury Vapor, Fluorescent, quartz Halogen)	Height of Light Fixtures	Fixture Hood y/n	Compliance Action, Adjust, Add hood, or replace	Time Man hours	Price of parts	Total Estimated costs	Site Area (sf)	Site Max Watts (0.045 Watts/sf)
Big Rock 1200 Tanks	Building			1-10 ft							
	Tank	x 3	Halogen Flood 1	2- 30 ft		Replace with hooded fixture	0.5	\$ 75	\$ 109	22,100	994.5
	Well					Replace with hooded fixture	1	\$ 150	\$ 218		
Hume Tank	Building										
	Tank	x 2	Flood: 1	20 ft		Replace with hooded fixture	1	\$ 150	\$ 218	3,435	154.6
	Well										
Latino Tank	Building										
	Tank	x 1	Flood: 1	8 ft		Replace with hooded fixture	0.5	\$ 75	\$ 109	6,139	276.3
	Well										
Winding Way Tank	Building										
	Tank	x 3	Flood 2 with hoods, 1 not	20 ft	2- yes	Replace with hooded fixture	0.5	\$ 75	\$ 109		
	Well				1- No	Replace with hooded fixture	0.5	\$ 75	\$ 109		
Entrada P.S.	Building										
	Tank	x 1	Flood: 1	7 ft	1- No	Replace with hooded fixture	0.5	\$ 75	\$ 109		
	Well										
Topanga Beach P.S.	Building										
	Tank	x 3	Flood	22 ft		Replace with hooded fixture	1.5	\$ 225	\$ 326	15,065	677.9
	Well										
Topanga Forks P.S.	Building										
	Tank	x 10	10 Metal Halide Wall Packs	8 ft		Replace with hooded fixture	3	\$ 600	\$ 803	82,629	3718.3
	Well										
Topanga Oaks P.S.	Building										
	Tank	x 7	3 Metal Halide Flood lights	4 - 20 ft	n yes	Replace with hooded fixture	2	\$ 800	\$ 935		
	Well					Adjust with man lifts	3	\$ 300	\$ 503		
Topanga Parks P.S.	Building										
	Tank	x 4	4 High pressure Sodium Flood	4 - 30 ft	yes	Adjust with man lifts	4	\$ 400	\$ 670		
	Well					Replace with hooded fixture	1.5	\$ 225	\$ 326	8,785	395.3
Alpine P.S.	Building										
	Tank	x 5	1- Wall Pack Incandescent	8 ft	n	Replace with hooded fixture	0.5	\$ 100	\$ 134		
	Well										
Santa Maria Tank	Building										
	Tank	x 5	4 - Flood	8 ft	n	Replace with hooded fixture	2	\$ 300	\$ 435	316	14.2
	Well					Replace with hooded fixture	0.5	\$ 75	\$ 109		
Parks Tanks	Building										
	Tank	x 2	1- Wall Pack Incandescent	8 ft	n	Replace with hooded fixture	2	\$ 300	\$ 435	6,091	274.1
	Well					Replace with hooded fixture	0.5	\$ 200	\$ 234		
Parks Tanks	Building										
	Tank	x 5	4 - Flood	8 ft	n	Replace with hooded fixture	2	\$ 300	\$ 435	6,091	274.1
	Well					Replace with hooded fixture	0.5	\$ 200	\$ 234		
Parks Tanks	Building										
	Tank	x 2	Flood: 1	8 ft	n	N/A site abandoned				6,749	303.7
	Well										
Parks Tanks	Building										
	Tank	x 0	N/A abandoned No work required	8 ft	n	N/A site abandoned				6,749	303.7
	Well										
Parks Tanks	Building										
	Tank	x 0	No work required							14,370	646.7
	Well										
Parks Tanks	Building										
	Tank	x 0	No work required								
	Well										
Parks Tanks	Building										
	Tank	x 0	No work required								
	Well										
Parks Tanks	Building										
	Tank	x 0	No work required							6,091	274.1
	Well										
Parks Tanks	Building										
	Tank	x 0	No work required								
	Well										

Light bulbs will be replaced as needed to make sure we don't exceed the specific lighting allowance for each site.

DARK SKIES ORDINANCE COMPLIANCE WORKSHEET

SITE SUMMARY, PLAN, ESTIMATES

Site Name / Identifier (from table)	FACILITY Type (check)	# of Lights Per Facility	Fixture Type e.g. (Incandescent, HP Sodium, Metal Halide, Mercury Vapor, Fluorescent, quartz Halogen)	Height of Light Fixtures	Fixture Hood y/n	Compliance Action, Adjust, Add hood, or replace	Time Man hours	Price of Estimated parts	Total Estimated costs	Site Area (sf)	Site Max Watts (0.045 Watts/sf)
District 36											
Hasley Tank	Building										
	Tank	X	incandescent 2 fixtures	37 ft	n	Replace with hooded fixture	1.5	\$ 225	\$ 326	18,684	840.8
	Well										
Cuyama Tank	Other	X	incandescent 1 fixtures	7 ft	n	Replace with hooded fixture	0.5	\$ 75	\$ 109		
	Building										
	Tank	X	incandescent 5 fixtures	33 ft	n	Replace with hooded fixture	2.5	\$ 375	\$ 544	14,660	659.7
	Well										
	Other	X	incandescent 1 ea, 1 fixture	6 ft	n	Replace with hooded fixture	0.5	\$ 75	\$ 109		
	Building	X	incandescent 2 ea, 2 fixture	7 ft	n	Replace with hooded wall pack	1	\$ 200	\$ 268	2,147	96.6
Hasley Cyn P.S.	Tank										
	Well										
	Other										
Los Valles	Building	X	HP Sodium	8 ft	n	Replace with hooded wall pack	2.5	\$ 500	\$ 669	17,300	778.5
	Tank	X	Metal Halide	38 ft			2	\$ 200	\$ 335		
	Well	X	Metal Halide	18 ft			2	\$ 200	\$ 335		
District 37											
McEnnery P.S.	Building	X	incandescent 1 fixture	7 ft		Replace with hooded wall pack	0.5	\$ 100	\$ 134	12,303	553.6
	Tank										
	Well										
McEnnery Tank	Other										
	Building										
	Tank	X	incandescent 2 light per pole 2 poles	37 ft		Replace with hooded fixture	2	\$ 150	\$ 285	10,351	465.8
South Tank	Well										
	Other										
	Building										
North Tank	Tank	X	incandescent 2 fixtures	33 ft		Replace with hooded wall pac	1	\$ 200	\$ 268	25,222	1135.0
	Well										
	Other										
Vincent Hill	Building										
	Tank	X	incandescent 2 fixtures	37 ft		Replace with hooded wall pac	1	\$ 200	\$ 268	12,276	552.4
	Well										
Well 37-1	Other	X	incandescent 1 fixture on electrical panel	7 ft		Replace with hooded fixture	0.5	\$ 75	\$ 109		
	Building	X	incandescent 2 fixtures	7 ft		Replace with hooded wall pac	1	\$ 200	\$ 268	58,820	2646.9
	Tank	X									
Well 37-3	Well	0									
	Other										
	Building										
Well 37-3	Tank	X	HP sodium: 2 ea on Old C12 building	7 ft		Replace with hooded wall pac	1	\$ 200	\$ 268	13,909	625.9
	Well										
	Other										
Well 37-1	Building	X	HP sodium: 4 ea with photo cells	10 ft		Replace with hooded wall pac	2	\$ 400	\$ 535	30,515	1373.2
	Tank										
	Well	X	HP Sodium: 1 ea on pole	8 ft		Replace with hooded pole mont	2	\$ 200	\$ 335		

Light bulbs will be replaced as needed to make sure we don't exceed the specific lighting allowance for each site.

DARK SKIES ORDINANCE COMPLIANCE WORKSHEET

SITE SUMMARY, PLAN, ESTIMATES

Site Name / Identifier (from table)	FACILITY Type (check)	# of Lights Per Facility	Fixture Type e.g. (Incandescent, HP Sodium, Metal Halide, Mercury Vapor, Florescent, quartz Halogen)	Height of Light Fixtures	Fixture Hood y/n	Compliance Action, Adjust, Add hood, or replace	Time Man hours	Price of parts	Total Estimated costs	Site Area (sf)	Site Max Watts (0.045 Watts/sf)
Well 37-4	Building	0	No work required							30,515	1373.2
	Tank	0									
	Well	0									
	Other	0									
Crown Valley P.S.	Building	13 ea	Incandescent: 13 lights on 7 fixtures	7 ft		Replace with hooded fixture	3.5	\$ 525	\$ 761	3,016	135.7
	Tank										
	Well										
	Other										

District 40

Region 4

L12 & 60th West	Building	X	6 ea	Incandescent, 2 ea per fixture, 3 Fixtures	8 ft	Replace with hooded fixture	1.5	\$ 225	\$ 326	50,625	2278.1
	Tank										
	Well										
	Other	X	2 ea	Metal Halide: 2 ea poles, 1 per pole	18 ft	Replace with hooded pole mount	4	\$ 400	\$ 670		
Old Timers	Building	X	4	Incandescent: 3 with 2 ea	7 ft	Replace with hooded wall pack	1.5	\$ 225	\$ 326	93,779	4220.1
	Tank	X		Incandescent: 2 with 2 ea	32 ft	Replace with hooded fixture	1	\$ 150	\$ 218		
	Well	X									
	Other										
Beverly Martin	Building	X	1	Replace with a wall pack	7 ft		0.5	\$ 225	\$ 259	111,000	4995.0
	Tank	X									
	Well	X									
	Other										

Region 24

116th St East P.S.	Building	X	6	HP Sodium 4 ea	8 ft	Replace with hooded wall pack	3	\$ 600	\$ 803	153,630	6913.4
	Tank										
	Well										
	Other	X	2	Quartz Halogen w/motion sensor 2 ea	8 ft	Replace with hooded wall pack	1	\$ 200	\$ 268		
116th Tank	Building		0	No work required						5,742	258.4
	Tank		0								
	Well		0								
	Other		0								
Wells 24-4 & 24-5	Building		0	No work required						85,452	3845.3
	Tank		0								
	Well	X	0								
	Other		0								

Region 27

27-5	Building	X	2	HP Sodium : 2 ea	7 ft	Replace with hooded wall pack	1	\$ 200	\$ 268	13,822	622.0
	Tank										
	Well										
	Other										
Well 27-7	Building										
	Tank										
	Well	X	1	Metal halide: 1 ea	18 ft	Replace with hooded fixture in compliance	2	\$ 200	\$ 335	8,167	367.5
	Other										

Light bulbs will be replaced as needed to make sure we don't exceed the specific lighting allowance for each site.

DARK SKIES ORDINANCE COMPLIANCE WORKSHEET

SITE SUMMARY, PLAN, ESTIMATES

Site Name / Identifier (from table)	FACILITY Type (check) Building X Tank Well Other	# of Lights Per Facility	Fixture Type e.g. (Incandescent, HP Sodium, Metal Halide, Mercury Vapor, Fluorescent, quartz Halogen)	Height of Light Fixtures	Fixture Hood y/n	Compliance Action, Adjust, Add hood, or replace	Time Man hours	Price of parts	Total Estimated costs	Site Area (sf)	Site Max Watts (0.045 Watts/sf)
Well 27-3	Building X Tank Well Other	1	incandescent: 1 ea	8 ft	n	Replace with hooded fixture	0.5	\$ 75	\$ 109	18,950	852.8
	Building X Tank Well Other	4	incandescent: 2 ea 2 per conduit	32 ft	n	Replace with hooded fixture	1	\$ 150	\$ 218	56,224	2530.1
Littlerock	Building X Tank Well Other	1	incandescent: 1 ea	7 ft	n	Replace with hooded fixture	0.5	\$ 75	\$ 109		
Region 35											
35-2	Building X Tank Well Other	4	HP Sodium: 4 ea wall packs	8 ft	n	Replace with hooded wall pac	2	\$ 400	\$ 535	8,946	402.6
	Building X Tank Well Other	2	incandescent: 1 with 2 lights	30 ft	n	Replace with hooded fixture	0.5	\$ 75	\$ 109		
	Building X Tank Well Other	1	incandescent: 1 with 1 light	8 ft	n	Replace with hooded fixture	0.5	\$ 75	\$ 109		
Adobe Mtn Tank	Building X Tank Well Other	3	incandescent: 3 total on 2 conduits	24 ft 38 ft	n	Replace with hooded fixture	1.5	\$ 225	\$ 326	17,308	778.9
	Building X Tank Well Other	0	No work required							8,946	402.6
Blue Rock	Building X Tank Well Other	2	incandescent: 2 with 2 ea	7 ft	n	Replace with hooded fixture	1	\$ 150	\$ 218	4,246	191.1
168th & G	Building X Tank Well Other	0	No work required								
175E & Nugent	Building X Tank Well Other	0									
Region 38											
38-4	Building X Tank Well Other	1	HP Sodium: 1 ea	18 ft	n	Replace with hooded pole mount	2	\$ 200	\$ 335	29,000	1305.0
	Building X Tank Well Other	2	HP Sodium: 2 ea	7 ft	n	Replace with hooded wall pack	1	\$ 200	\$ 268	12,082	543.7
38-3	Building X Tank Well Other	4	HP Sodium: 4 ea	8 ft	n	Replace with hooded wall pac	2	\$ 400	\$ 535	15,680	705.6
Coolwater	Building X Tank Well Other	4	incandescent: 2 ea per fixture	40 ft	n	Replace with hooded fixture	1	\$ 150	\$ 218	28,094	1264.2

Light bulbs will be replaced as needed to make sure we don't exceed the specific lighting allowance for each site.

DARK SKIES ORDINANCE COMPLIANCE WORKSHEET

SITE SUMMARY, PLAN, ESTIMATES

Site Name / Identifier (from table)	FACILITY Type (check)	# of Lights Per Facility	Fixture Type e.g. (Incandescent, HP Sodium, Metal Halide, Mercury Vapor, Fluorescent, quartz Halogen)	Height of Light Fixtures	Fixture Hood y/n	Compliance Action, Adjust, Add hood, or replace	Time Man hours	Price of Estimated parts	Total Estimated costs	Site Area (sf)	Site Max Watts (0.045 Watts/sf)
Buttes Tank West	Building										
	Tank	X	incandescent: 2 ea per fixture	40 ft	n	Replace with hooded fixture	0.5	\$ 75	\$ 109	14,786	665.4
	Well										
	Other										
Region 39											
39 Tanks	Building	X	HP Sodium: 1 ea	8 ft	n	Replace with hooded wall pack	0.5	\$ 100	\$ 134	23,336	1050.1
	Tank	X	incandescent: 2 ea 1 per conduit	30 ft	n		1	\$ 150	\$ 218		
	Well										
	Other										
Well 39-1	Building										
	Tank										
	Well	X	incandescent: 2 ea on 1 conduit		n	Replace with hooded fixture	0.5	\$ 75	\$ 109	3,016	135.7
	Other										
Ft Tejon Tank	Building										
	Tank	X	incandescent: 4 ea 2 per conduit	34 ft	n	Replace with hooded fixture	1	\$ 150	\$ 218	39,686	1785.9
	Well										
	Other										
X-8 & 121E	Building		No work required								
	Tank	0									
	Well	0									
	Other	0									
X-3 Hydro	Building		N/A abandoned No work required								
	Tank	0									
	Well	0									
	Other	0									
W-2	Building		No work required								
	Tank	0									
	Well	0									
	Other	0									

Light bulbs will be replaced as needed to make sure we don't exceed the specific lighting allowance for each site.

OVERVIEW OF PROPOSED OUTDOOR LIGHTING DISTRICT ORDINANCE ATTACHMENT D

Purpose: Provide regulations that will permit reasonable uses of outdoor lighting for nighttime safety and security and promote dark skies for the enjoyment and health of humans and wildlife. The Ordinance establishes a Rural Outdoor Lighting District. DRP is requesting adjustments to the State's Outdoor Lighting Zones so that the State's Rural Lighting Zone is consistent with the County's Rural Map.

Application: Applies to all new lighting, major additions, replacement lighting, and resumption of use after abandonment.

Light Trespass: Outdoor lighting shall not cause light trespass. The following is considered light trespass: 1) over 0.5 foot-candles where the zoning on the adjacent parcel is a residential, open space, or agricultural zone, or public right-of-way; or 2) over 1.0 foot-candles where the zoning on the adjacent parcel is any other zone.

Shielding: All outdoor lighting shall be fully shielded. Fully-shielded means that the top of the fixture is covered and the sides are covered to a point where light is projected below a horizontal plane.

Height Limits: Maximum height limits established to avoid light pollution and light trespass. Height limits for residential, agricultural, open space and watershed zones is 20 feet, except each outdoor light fixture installed above 15 feet shall have an output rating of less than 400 lumens. Height limit for commercial zones is 30 feet. And for industrial zones is 35 feet.

Hours of Operation: Outdoor lighting shall be turned off between the hours of 10 p.m. and sunrise. Where uses operate past 10 p.m. lighting shall either be turned off within one hour after the close of business or dimmers shall be used.

Street Lighting: Street lights shall be installed at all roadway intersections and at driveways where the Director of Public Works indicates that a street light would be beneficial due to the proposed use of the property. Street lights will not be allowed on local residential streets unless required by Public Works. Street lights shall be placed the maximum distance apart with the minimum lumens allowable by Public Works.

Outdoor Recreation Facilities: Lighting for playing fields shall be fully shielded and aimed so their beams fall within the primary activity area and not cause light trespass onto adjacent properties. Lights for recreational fields may be mounted up to 75 feet in height.

Signs: Outdoor lighting for all new signs shall be mounted to the top of the sign and be oriented downward and the lights shall be fully shielded.

Prohibited Lighting: These types of lighting are prohibited: drop-down lenses, mercury vapor lights, and searchlights, laser lights, or any other lighting that flashes, blinks, alternates or moves.

Nonconforming Lighting: All outdoor lighting in use on the effective date of this Ordinance that does not meet these requirements shall be removed or made to comply within six months of the effective date of this Ordinance if such light causes light trespass or within three years of the effective date of this Ordinance if such lighting does not cause light trespass.

CSD Modifications: The Ordinance includes modifications to specific Community Standards Districts (Leona Valley, Acton, Santa Monica Mountains North Area, Castaic Area, Juniper Hills, Southeast Antelope Valley, Elizabeth Lake and Lake Hughes, and San Francisquito Canyon) that address outdoor lighting. CSD regulations have been amended to remove duplicate or conflicting regulations.

Cutoff Performance



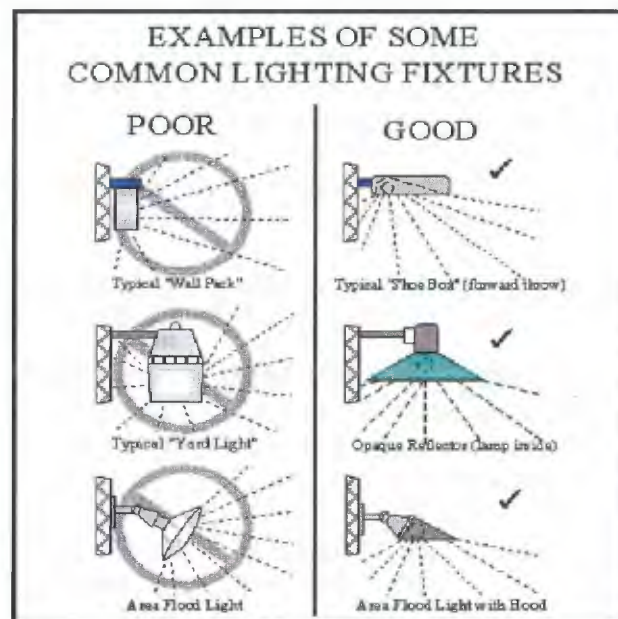
Cutoff fixture may emit not more than 2.5 percent of its light in this area. Full cutoff fixtures do not emit any light in this area.

Cutoff fixture and full cutoff fixtures emits not more than 10 percent of its light in the area between zero and 10 degrees below the horizontal

Drop-down lens



Full cutoff fixtures



DARK SKIES ORDINANCE COMPLIANCE

ID	Task Name	Duration	Start	Finish	2010	2011	2012	2013	2014
1	ACTION PLAN DUE TO DEPARTMENT OF REGIONAL PLANNING	1 day	Sun 06/24/12	Mon 06/25/12					
2	DRAFT ORDINANCE MODIFICATIONS AND ADOPTION (ASSUME 1 YEAR)	12 mos	Mon 06/25/12	Mon 06/17/13					
3	APPLY FOR DETERMINED VARIANCES	60 days	Mon 06/17/13	Mon 08/30/13					
4	PROCUREMENT OF MATERIALS (OSD WAREHOUSE IF SUFFICIENT SUPPLIES AVAILABLE)	1 mon	Mon 06/17/13	Tue 07/16/13					
5	Installations	12.4 days	Tue 07/16/13	Tue 08/06/13					
6	District 21 Installations	0.6 days	Tue 07/16/13	Tue 07/16/13					
7	Dist 21 West Tank	2 hrs	Tue 07/16/13	Tue 07/16/13					
8	Dist 21 Kagel Canyon Well Site	2 hrs	Tue 07/16/13	Tue 07/16/13					
9	Dist 21 East Tank	2 hrs	Tue 07/16/13	Tue 07/16/13					
10	District 29 Installations	4.8 days	Tue 07/16/13	Wed 07/24/13					
11	Dist 29 Owen Tank/PS	1.5 hrs	Tue 07/16/13	Tue 07/16/13					
12	Dist 29 Fernwood Tank/PS	2 hrs	Tue 07/16/13	Wed 07/17/13					
13	Dist 29 Saddle Peak Tank	4.5 hrs	Wed 07/17/13	Wed 07/17/13					
14	Dist 29 Topanga Forks Tank	2.5 hrs	Wed 07/17/13	Wed 07/17/13					
15	Dist 29 Topanga Oaks Tank	1 hr	Wed 07/17/13	Wed 07/17/13					
16	Dist 29 New Summit Tank	1.5 hrs	Wed 07/17/13	Thu 07/18/13					
17	Dist 29 Topanga Beach Tanks	4.5 hrs	Thu 07/18/13	Thu 07/18/13					
18	Dist 29 Big Rock 1200 Tanks	2 hrs	Thu 07/18/13	Thu 07/18/13					
19	Dist 29 Hume Tank	2 hrs	Thu 07/18/13	Thu 07/18/13					
20	Dist 29 Laigo Tank	1.5 hrs	Thu 07/18/13	Mon 07/22/13					
21	Dist 29 Winding Way Tank	2 hrs	Mon 07/22/13	Mon 07/22/13					
22	Dist 29 Entrada PS	2 hrs	Mon 07/22/13	Mon 07/22/13					
23	Dist 29 Topanga Beach PS	12.5 hrs	Mon 07/22/13	Tue 07/23/13					
24	Dist 29 Topanga Forks PS	2.5 hrs	Tue 07/23/13	Tue 07/23/13					
25	Dist 29 Topanga Oaks PS	3 hrs	Wed 07/24/13	Wed 07/24/13					
26	Dist 29 Topanga Park PS	3 hrs	Wed 07/24/13	Wed 07/24/13					
27	District 36 Installations	1.15 days	Wed 07/24/13	Thu 07/25/13					
28	Dist 36 Hasley Tank	2.5 hrs	Wed 07/24/13	Wed 07/24/13					
29	Dist 36 Cuyama Tank	3 hrs	Wed 07/24/13	Thu 07/25/13					
30	Dist 36 Hasley Canyon PS	1 hr	Thu 07/25/13	Thu 07/25/13					
31	Dist 36 Los Valles	5 hrs	Thu 07/25/13	Thu 07/25/13					
32	District 37 Installations	1.85 days	Thu 07/25/13	Tue 07/30/13					
33	Dist 37 McEnery PS	1 hr	Thu 07/25/13	Thu 07/25/13					
34	Dist 37 McEnery Tank	2.5 hrs	Thu 07/25/13	Mon 07/29/13					



Group By Summary

Deadline

Split

External Tasks

Project Summary

Rolled Up Critical Task

Rolled Up Milestone

Rolled Up Progress

Milestone Summary

Rolled Up Task

Task

Critical Task

Progress

Project: DARK SKIES ORDINANCE C
 Date: Wed 04/18/12
 Project Manager: David Merrill

ID	Task Name	Duration	Start	Finish	2010	2011	2012	2013	2014
35	Dist 37 South Tank	1.5 hrs	Mon 07/29/13	Mon 07/29/13					
36	Dist 37 North Tank	2 hrs	Mon 07/29/13	Mon 07/29/13					
37	Dist 37 Vincent Hill	1.5 hrs	Mon 07/29/13	Mon 07/29/13					
38	Dist 37 Well 37-1	3.5 hrs	Mon 07/29/13	Mon 07/29/13					
39	Dist 37 Well 37-3	2.5 hrs	Mon 07/29/13	Tue 07/30/13					
40	Dist 37 Crown Valley PS	4 hrs	Tue 07/30/13	Tue 07/30/13					
41	District 40 Region 4 Installations	0.85 days	Tue 07/30/13	Wed 07/31/13					
42	Dist 40-4 L-12 & 60th West	5 hrs	Tue 07/30/13	Wed 07/31/13					
43	Dist 40-4 Old Timers	2.5 hrs	Wed 07/31/13	Wed 07/31/13					
44	Dist 40-4 Beverly Martin	1 hr	Wed 07/31/13	Wed 07/31/13					
45	District 40 Region 24 Installations	0.4 days	Wed 07/31/13	Wed 07/31/13					
46	Dist 40-24 116th St East PS	4 hrs	Wed 07/31/13	Wed 07/31/13					
47	District 40 Region 27 Installations	0.7 days	Wed 07/31/13	Thu 08/01/13					
48	Dist 40-27 27-5	1.5 hrs	Wed 07/31/13	Wed 07/31/13					
49	Dist 40-27 Well 27-7	2.5 hrs	Thu 08/01/13	Thu 08/01/13					
50	Dist 40-27 Well 27-3	1 hr	Thu 08/01/13	Thu 08/01/13					
51	Dist 40-27 Little Rock	2 hrs	Thu 08/01/13	Thu 08/01/13					
52	District 40 Region 35 Installations	0.7 days	Thu 08/01/13	Mon 08/05/13					
53	Dist 40-35 35-2	3.5 hrs	Thu 08/01/13	Thu 08/01/13					
54	Dist 40-35 Adobe Min Tank	2 hrs	Thu 08/01/13	Mon 08/05/13					
55	Dist 40-35 168th & G	1.5 hrs	Mon 08/05/13	Mon 08/05/13					
56	District 40 Region 38 Installations	0.9 days	Mon 08/05/13	Tue 08/06/13					
57	Dist 40-38 38-4	2.5 hrs	Mon 08/05/13	Mon 08/05/13					
58	Dist 40-38 38-3	1.5 hrs	Mon 08/05/13	Mon 08/05/13					
59	Dist 40-38 Coolwater	2.5 hrs	Mon 08/05/13	Mon 08/05/13					
60	Dist 40-38 Builes Tanks Center & East	1.5 hrs	Mon 08/05/13	Tue 08/06/13					
61	Dist 40-38 Builes Tank West	1 hr	Tue 08/06/13	Tue 08/06/13					
62	District 40 Region 39 Installations	0.45 days	Tue 08/06/13	Tue 08/06/13					
63	Dist 40-39 39 Tanks	2 hrs	Tue 08/06/13	Tue 08/06/13					
64	Dist 40-39 Well 39-1	1 hr	Tue 08/06/13	Tue 08/06/13					
65	Dist 40-39 Ft Tejon Tank	1.5 hrs	Tue 08/06/13	Tue 08/06/13					
66	INSTALLATIONS COMPLETE	0 days	Tue 08/06/13	Tue 08/06/13					
67	BILL OUTSIDE AGENCIES FOR INSTALLATIONS	30 days	Tue 08/06/13	Thu 09/26/13					
68	PROJECT COMPLETE	0 days	Mon 09/30/13	Mon 09/30/13					

Project: DARK SKIES ORDINANCE C
Date: Wed 04/18/12
Project Manager: David Merrill

Task
Critical Task
Progress

Milestone
Summary
Rolled Up Task

Rolled Up Critical Task
Rolled Up Milestone
Rolled Up Progress

Split
External Tasks
Project Summary

Group By Summary
Deadline

Page 2

WATERWORKS DIVISION
FACILITY SITES WITH FIXTURES > 15 FT FOR LIGHTING TANK ACCESS HATCHES

FACILITY TYPE	WWD_NO	NAME/ID	ADDRESS	CITY/COMM	ZIP
TANK	21	DISTRICT 21 EAST TANK	12587 Dexter Park Road	Kagel Canyon	91342
TANK	21	DISTRICT 21 WEST TANK	APN 2846-003-303 (No Site Address)	Kagel Canyon	91342
TANK	29	BIG ROCK 1200 TANKS	20951 W. Big Rock Drive	Malibu	90265
TANK	29	HUME	21737 Azurelee Road	Malibu	90265
TANK	29	TOPANGA FORKS TANK	22160 W. Topanga School Road	Topanga	90290
TANK	29	SADDLE PEAK TANK	2350 W. Saddle Peak Road	Topanga	90290
TANK	29	WINDING WAY TANK	28001 Overview Road	Malibu	90265
TANK	29	NEW SUMMIT TANK	3321 N. Topanga Canyon Boulevard	Topanga	90290
TANK	29	TOPANGA BEACH TANKS	3831 S. Castlerock Road	Topanga	90290
TANK	29	LATIGO TANK	4230 S. Ocean View Drive	Malibu	90265
TANK	36	HASLEY TANK	31400 Romero Canyon Road	Val Verde	91384
TANK	36	CUYAMA TANK	31632 W. Cuyama Road	Val Verde	91384
TANK	36	LOS VALLES	no address APN 2866-062-900		
TANK	37	NORTH TANK	1707 W. Sierra Highway	Acton	93510
TANK	37	MCENNERY TANK	2225 Desert Road	Acton	93510
TANK	37	SOUTH TANK	2733 W. Sacramento Avenue	Acton	93510
TANK	40-04	OLD TIMERS	8820 E. Nugent Street	Lancaster	93535
TANK	40-27	LITTLEROCK	87th Street East & Fort Tejon Road	Littlerock	93543
WELL	40-27	WELL 27-7	10555 E. Avenue T	Littlerock	93543
TANK	40-35	35-2	18000 E. Avenue I	North Los Angeles County	93535
TANK	40-35	ADOBE MOUNTAIN	45240 N. 250th Street East	Lancaster	93535
TANK	40-38	BUTTES TANKS CENTER AND EAST	39750 N. 163rd Street East	Lake Los Angeles	93535
TANK	40-38	BUTTES TANK WEST	39752 N. 163rd Street East	Lake Los Angeles	93535
TANK	40-39	FT TEJON TANK	Avenue Y8 & 125th Street East	Pearblossom	93553
TANK	40-39	39 TANKS	no address APN 3061-026-903		

WATERWORKS DIVISION

FACILITY SITES WITH FIXTURES > 15 FT FOR OTHER REASONS THAN LIGHTING TANK ACCESS HATCHES

FACILITY	WWD NO	NAME/ID	ADDRESS	CITY/COMM	ZIP
PUMP ST/29		TOPANGA BEACH P.S.	3800 S. Topanga Canyon. Blvd.	Topanga	90265
TANK	36	LOS VALLES	no address APN 2866-062-900		
TANK	40-04	L12 & 60TH WEST	42158 60th Street West	Lancaster	93536
WELL	40-27	WELL 27-7	10555 E. Avenue T	Little Rock	93543
WELL	40-38	38-4	41000 N. 172nd Street East	Lake Los Angeles	93535